



FRIDAY, JANUARY 16.

## Contributions.

Real Estate Records of Railroad Corporations.  
II.

NEW HAVEN, Dec. 1, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE.

In a previous communication, after describing a system of indexing and filing the title deeds of a railroad already constructed, I referred to certain modifications of the same necessary in the case of a road in process of construction. If the business of title-searching, bargaining for right of way, and purchasing of land could be deferred until after the centre line had been finally located by the engineering department beyond all question of change, the custody of the real estate records would be a much simpler matter, but this title-searching and right-of-way work is almost always more or less contemporary with that of the engineering department, and is generally commenced and well under way before the final location of the line is adopted; so that frequently, after a line has been surveyed and mapped, and a large portion of the right of way contracted for and even some portions purchased, policy or necessity will dictate a change of line more or less sweeping; the old line is abandoned, and a new one substituted either in whole or in part.

In practice, therefore, it will not be found advisable to assign a continuous series of title numbers to the parcels of right of way, until after the final completion of the line; or if such numbers are assigned they should, as Mr. Paine remarks, be merely provisional ones, to be eventually discarded for the final numbers.

In some states, where railroads are constructed under the provisions of a general railroad act, the first legal proceeding often resembles an ordinary suit at law, where all the parties, over whose lands it is proposed to construct the road, must be notified by service of legal process to attend the hearing at which the corporation proposes to request, from the proper authority, an approval of its location of line.

Connecticut is such a state, and hence on a certain road projected in that state, with which I am now connected, an extended searching of titles was commenced as soon as the preliminary surveys had been finished and the location surveys were fairly under way.

In this case parties familiar with the searching of titles were employed by the General Counsel of the road to search title in the several towns, and to prepare title abstracts of every parcel of right of way along the line of the survey.

The topographer of the field corps of engineers had of course been instructed by the Chief Engineer to obtain the names of the various property owners and to indicate on his field sketches the boundary lines between them.

At the Chief Engineer's office, as fast as the located line was plotted and mapped to a scale of 400 ft. to the inch, tracings were made for the use of the title-searchers on strips of stout tracing paper of a uniform width of about 9 in., which were folded after the manner of a "continuous profile book," and mounted between two stout card-board covers whose dimensions were 4 in. by 9 in., this size being thought convenient for the pocket.

These covers were made up to special order from what is termed binders' board, and were covered with white paper. After a map was thus mounted a strip of red tape, drawn through two slits cut with a penknife in the centre of the front cover and then tied around the whole, served to secure and protect the map when not in use. At the top of the front cover was placed one of Dennison's red-bordered adhesive labels, size about  $1\frac{1}{2} \times 2\frac{1}{4}$  in., on which was indorsed the following:

X. Y. &amp; Z. R. R. Co.

Location Map,

Town of.....

It will be noted that one map was generally used for each town, and contained the entire line through that town and no more. Where, owing to curvature, the centre line would run off the strip of tracing paper, the line was broken and jogged down in order to keep it on the paper. The maps showed the centre line and side lines, fence lines, highways, streams, natural objects, etc., etc., and also owners' names and the boundaries between them as ascertained by the topographer. A scale of feet and an arrow indicating the meridian were also shown on the map.

As changes were liable to be made in the location at any time, no numbers were assigned to the parcels of right of way, but instead a series of letters was used. Thus on each map the first title was designated as "Title A," the second "Title B," and so on through the alphabet to "Title Z," when the next title was designated as "Title A<sup>2</sup>," etc., to "Z<sup>2</sup>," then "A<sup>3</sup>" to "C<sup>3</sup>," and so on as far as required. In this way of course there would be a set of title letters for every town, so that in filing documents or referring to titles it was necessary to take account of both town and title letter. Thus, for instance, every town through which the line passed would have titles A, B, C, etc., etc. No system of numbers could be adopted at this stage of affairs that would be permanent, for the reasons already explained. Hence the only thing possible was to adopt this provisional system of indorsement,

which was to be replaced by the system described in my former communication, as soon as the road was completed. It was thought that when this change was made less confusion would result if letters were exclusively used in the provisional system, figures being reserved for the final indorsements. Of course all provisional indorsements on original documents were made in lead pencil, so that they could be readily effaced thereafter when the final indorsement came to replace them.

It rarely happens that a topographer will get all names and proprietors' boundaries correctly noted on his field sketches. The title-searchers, therefore, supplied themselves with tape lines, and making a personal inspection of the line, located all boundaries on their maps, and checked the accuracy of the same by the results of their searches, aided by such inspection, and many inaccuracies were thus detected and corrected.

In this work of inspection they usually employed some resident of the town familiar with the ownership of the lands in question to accompany them, and give information as to proprietors, boundaries, etc.

The original notes of the title-searchers were taken in abstract form, as explained in the previous article, and noted directly from the town record books in pencil in pocket memorandum books, which opened from the top, and were about  $3\frac{1}{2} \times 6$  in. in size. Pencil entries gave neater results than ink, and in preliminary work could be more readily modified or erased. It was found quite convenient to use one of these books for temporary memoranda not preserved, and from this book leaves could be removed and inserted in the other with mucilage whenever space was lacking. In this way, by a little care, the original notes and searches were preserved in permanent form and in such shape as to be intelligible for all time and of service when searches should be required at the time of purchasing the property. These books received one of the adhesive labels already described, on which was placed the following indorsement:

X. Y. &amp; Z. R. R. Co.

Notes of Land Titles.

Town of..... Book No. 1.

Titles A to M<sup>2</sup>.

Sometimes four or five of these books were required for each town.

When the title searching was completed, these books were used to prepare the list of parties who were to be notified of the hearing for approval of location, and were then filed away with the maps for future use and reference.

All corrections to maps discovered by the title-searcher were at once reported to the Chief Engineer, and corrected on the original map.

Several changes of line were made while this work was in progress, and in each case of course the new line diverged from and subsequently united with the old one again. In such cases an additional indorsement, showing what portions of the old line were thus abandoned, and the dates thereof, were placed both on those maps and note books which related to the affected portion, and new maps and new note books were prepared as before for the new or substitute line, the new titles being distinguished by small italic letters, as *l*, *m*, *n*, where capitals *L*, *M*, *N*, were used on the abandoned line.

When the centre line was finally approved in due form of law, the work of securing right of way began, and a new set of right-of-way maps, one for each town, was prepared as before, on which all the former errors of owners' names, boundaries, etc., were corrected. They also showed the quantity of land taken from each owner in acres and hundredths, and, of course, showed all buildings included within or situated near the location. The amount taken from each owner was colored in a different tint on the map from the lands of adjoining proprietors, which was found very convenient when interviewing land-owners in explaining to them just what it was proposed to take from them. These maps were in each case accompanied by a profile of the line on tracing paper uniform in size and binding with the right-of-way maps.

The right-of-way agents also received memorandum books of about the same size as those used for the notes of land titles, which, however, bore the following indorsement:

X. Y. &amp; Z. R. R. Co.

Right of Way Book.

Town of.....

In these books two pages were devoted to each title, and the first of the two pages was in each instance headed about as follows:

Title M <sup>2</sup> .	
John Smith,	Greenwich.
Owner.	
Citizens Savings Bank,	Stamford.
Mortgage for \$1,800.00.	
Town of Greenwich,	
Tax Lien for \$44.50.	
Assessment List, 1883.	
1 house,	\$2,000.00
30 acres of land	3,000.00

—the idea being to give a complete list of all parties in any way interested in the property for the guidance of the right-of-way agent in his work, mentioning all mortgages and other liens and incumbrances, with their amount, also giving the amount for which the property was assessed for purposes of taxation, and all other information available that in any way tended to fix the value of the property or throw light upon the question of damages.

The right-of-way agent, before commencing work in any town, often employed some competent expert, such as the Town Clerk or one of the Assessors, or other person well versed in the values of property, to take a trip with him over the line and estimate on all the property affected, in

which case the results were entered at the time, in pencil, in the right-of-way book for future reference.

A small paper scale 400 ft. to the inch was prepared for the right-of-way agent from the ordinary engine-divided paper scales sold by dealers in drawing materials, by cutting down the same to about 3 in. in length and  $\frac{1}{4}$  in. in width, and the same was used in scaling distances on the right-of-way maps and was kept in a pocket compartment in the back of the right-of-way book.

When the actual bargaining for right of way began, the results of each interview had with property owners was entered in pencil on the spot by the agent in the proper place in the right-of-way book, to be subsequently filled in by him in ink in more permanent form at his own convenience.

In this way the right of way books were a complete record, showing at a glance just what had been done on each parcel of land, whether agreements had been taken or deeds executed, prices given, or interviews had, and the results of the same, etc., etc., and afforded a ready means for arriving at the status of the right of way work at any time during its progress.

The right-of-way agents were supplied with printed forms for deeds or agreements, and when possible were given the power to take acknowledgments of deeds, and had authority in certain cases to take deeds or agreements on the spot without consultation with headquarters. In many cases owners would claim large damages, based on the manner in which the line passed diagonally through the fields, cutting off irregular-shaped portions etc., and, as they would claim, spoiling the entire lot. Usually the right-of-way map would not show the boundaries of such fields, in which cases the right-of-way agents generally established them themselves, by pacing off the sides of the fields and noting the same in their right-of-way books, and at their leisure making a permanent record of the same drawn to scale on the right-of-way maps, and the same system was applied to all cases wherein any object or line not shown on the map in any way affected the question of damages.

The Chief Engineer of course could then order his corps to establish these lines more accurately, whenever necessity required, and meanwhile this approximate location of them by the right-of-way agent prevented their being entirely overlooked, and served all present purposes. It will be seen that, under this provisional system of indorsement, title-searchers' note books contained most of the material from which the abstract books described in my previous article were eventually to be prepared, the balance being found in the right-of-way books; and that at first the searchers' maps and afterward the right-of-way agents' maps are the ancestors, so to speak, of the atlas or roll maps therein mentioned. Likewise when the final renumbering of titles and filing of documents takes place, the provisional title letters give place to a series of title numbers, and then and not until then is the index book prepared. Under this provisional system the want of an index book is hardly felt, for the town in which the property lies is almost always known, and a reference to the map at once gives the title letter in question, and moreover the parties requiring the information are familiar with every foot of the line. If, however, a provisional index of owners' names should be thought advisable, the form of the card catalogue, so-called, in use in most large libraries and fully described in the files of the *Railroad Gazette* would probably give on the whole the most satisfactory result.

Under this provisional system all title deeds, agreements, correspondence with land owners, and other original documents of value pertaining to the right-of-way work, should be filed in envelopes bearing a pencil indorsement of the name of the town and title letter, and as the work progresses separate files or bundles should be kept for each town. These envelopes, of course, being kept in the same relative order as the titles run on the location maps, in order to facilitate the finding of documents when required.

Ultimately these envelopes give place to the title envelopes arranged in files and indorsed as described in the preceding article.

In general, I believe that altogether too little attention is paid to right-of-way work at the outset, often little being done until construction is actually commenced, at which time land owners will always take advantage of the necessities of the railroad company. With a large force of contractors and men, delayed in their work by the refusal of a land owner to allow them to construct the line over his land until his land damages are settled, and the consequent expense to the railroad company which has to compensate them for this delay, the land owner usually can and always does demand and receive many times the value of his land, for this sum, exorbitant though it be, is far less than what the company would have to reimburse to its contractors for time lost pending the delays of the law in proceedings to take the property by condemnation.

The histories of many recent railroad enterprises, some located not far from New York city, are quite instructive upon this point. The only way to avoid such extortionate demands is to organize a right-of-way department early in the history of the enterprise, contemporary with the engineering department, and to insist on having as thorough a canvass made of the land owners before construction is commenced as is possible, obtaining agreements for deeds, or actual deeds, or, if nothing better can be had, getting the assurance of the parties themselves as to what they will ultimately accept for land damages and making an entry of all conversation in some permanent book of record. If for nothing better, these books will be valuable to refresh the mind of the right-of-way agent if he shall ever be called upon to testify in condemnation proceedings as to what value

be placed on his property and how much he considered the location damaged it in former times.

I verily believe that the comparatively small amount spent by a projected line in first class right-of-way work will, on a very few of their parcels of land only, save very many times that sum of money to the corporation. EDWIN A. HILL.

#### The Laufman Screw Car-Brake.

We illustrate a form of car-brake that has been recently introduced on the Minneapolis & St. Louis Railroad. As will be seen from the engravings, it is applied by means of a screw, which is threaded through a nut having gudgeons which work in a slot near the end of one arm of a bell-cranked lever. It will be noticed that the brake-shaft carries hand wheels at both its upper and lower ends, so that the brake can be applied or released either from the ground or from the roof of the car. The principal advantage claimed for the use of a screw and nut in preference to a chain and worm, is that the brake will not jar off from shocks in switching the friction of the screw threads being sufficient to hold the brake, without the use of a dog or ratchet wheel.

Screw brakes are very general on tenders, and on both passenger and freight cars in Europe, and work well and very rarely jar off. The screw and nut are, however, somewhat expensive, and require an occasional oiling.

#### Automatic Re-starting Injector.

We are indebted to the London Engineer for the annexed description and illustration of an automatic injector.

A new injector, patented by Messrs. Davies, Hamer & Metcalf, and introduced by the Exhaust Injector Co., Manchester, is arranged for automatic re-starting. The chief point in the construction of this injector is the "split" nozzle which was introduced in the exhaust injector, and the action of which is briefly as follows: When not working, the flap hangs open, thus leaving a large area for the egress of steam. When the steam is turned on, it rushes through this large area, and out of the injector by way of the overflow, carrying with it a portion of the air, thus creating a vacuum into which the water rises, thus effecting the lifting of the water. This water mingling with the steam, a stronger vacuum is formed, and this sucks the flap on to its seat, the nozzle then being practically solid, as in ordinary injectors. On the jet being broken in any way, the flap opens, and the process already described is repeated. By this means a certainty of action is secured, and whilst possessing all the advantages of the lifting injectors, no extra manipulation is required for lifting. The injector starts instantly steam and water are turned on, and if stopped in any way while steam and water are on, it immediately re-starts itself. As a test, steam has been allowed to blow through the injector for some time, and even then it immediately re-started on the water being put on.

#### Valve Motion.

The following is a copy, somewhat condensed, of a report presented to the Master Mechanics' Convention at Long Branch by Mr. James Meehan, Superintendent of Motive Power, Cincinnati, New Orleans & Texas Pacific Railway. Some interesting particulars are given as to the diagrams illustrated in our recent issue (Jan. 2), together with some details as to the performance of the passenger engine from which many of the diagrams were taken.

An improvement on the ordinary link motion has yet to be found. The early compression is an advantage in a quick-running engine, as experience with high speed stationary engines has shown that a late compression gives a destructive blow, while early compression cushions and arrests the piston. The use of long ports and the Allen valve cures wire drawing. Indicator diagrams show that back pressure can be reduced to a minimum, as it generally results from contracted blast nozzles and not from any defect in the link motion. The extended smoke arch enables the blast orifice to be enlarged.

Diagrams are taken with engine under ordinary circumstances, throttle sometimes lightly opened, except diagram No. 5, where brakes were on several cars, in order to get full capacity of engine. Engine has steam reversing gear.

The life of the link motion depends upon the extent of the bearing surfaces. A link with 2 in. face, driving valves over 16 in. or 17 in. ports, wore rapidly, but 2½ in. or 3 in. face links work well. Balancing is an unquestionable advantage. We use both Margach's and Richardson's, but find the latter gives least trouble though neither is perfect. Constant lubrication in small quantities is equally important. Most of our engines require refacing every five months. We use ¼ in. outside lap, line and line inside, 5½ in. travel, on passenger engines, and the same on freight, except that we give ½ in. inside lap. Some of our divisions have grades 60 ft. to the mile and 6° curves.

Insufficient size of boiler is a fertile source of delays and excessive cost of repairs, and it is better to make a large boiler well above wheels in case of a spring-hanger breaking.

We have eight engines 18 x 24 cylinders; boiler barrel, 54 in. diameter; centre, 7 ft. 3 in. above rails, 1,457 square ft. of heating surface. A pressure of 145 lbs. is easily maintained with poor fuel. They pull a local train of from six to eight cars between Cincinnati and Chattanooga, 339 miles, making 80 stops, and dead time of 1 hour 20 minutes in addition, in 11 hours 40 minutes, and often make up 40 minutes. The maximum grade is 60 ft.; the average, 40 ft., and the maximum curvature, 6°.

#### Boston Suburban Passenger Travel.

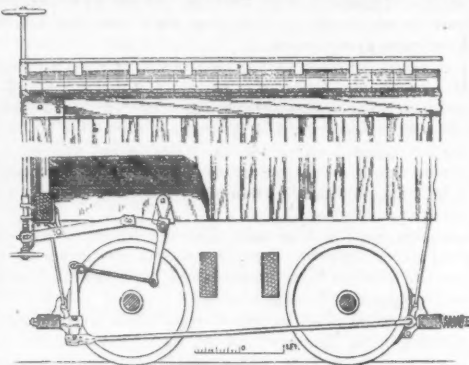
The Boston Herald has compiled the following table from the reports of the railroads for the year ending Sept. 30 last, showing the number of passengers carried to and from Boston by its nine roads:

	Passen- gers into Boston— 1884.	1883.	Passen- gers from Boston— 1884.	1883.
Boston & Albany.....	2,754,575	2,570,911	2,818,427	2,628,121
Boston & Lowell.....	1,046,790	1,860,181	2,026,251	1,832,369
Boston & Maine.....	2,573,579	2,292,461	2,627,198	2,345,251
Boston & Providence.....	2,068,260	1,803,221	2,065,657	1,794,544
Eastern.....	2,469,598	2,209,553	2,486,544	2,177,901
Fitchburg.....	1,233,046	1,105,106	1,220,976	1,109,183
New England.....	973,466	1,019,388	969,713	1,037,810
Old Colony.....	2,255,249	2,140,468	2,279,128	2,147,413
Revere Beach.....	654,930	814,230	660,700	847,494
Totals.....	16,929,443	15,815,532	17,154,984	15,940,110

The total number to and from Boston last year was 34,-

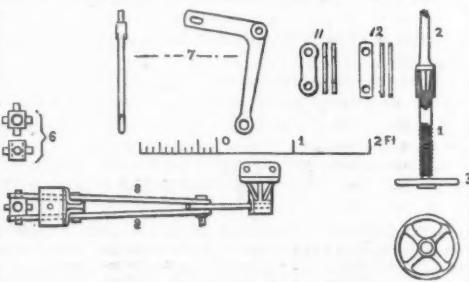
084,137; in 1883 it was 31,755,648, showing an increase of 2,328,489, or 7.3 per cent. The Herald says:

"Although this city has increased in population during the past year, it is a curious fact that the railroads carried out over 225,000 more people than they brought in. Perhaps the explanation is to be found, partially at least, in the emigrant travel which entered the city by steamer from Europe and left for the West by rail. The many street car



Laufman Screw Car-Brake—General View.

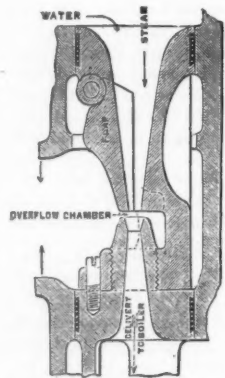
lines leading into the city from the outlying districts may also be a factor in the case, for during the summer season many persons, especially ladies, enjoy a ride into the city on the open street cars, but at night, tired by their day's tarry amid the city's excitements and bustle, they gladly hurry home in the more rapid steam trains. Of the nine roads, four standard gauge, the Boston & Albany, Boston & Providence, New York & New England, and Old Colony, have their stations on the southerly side of the city, while the remaining four standard gauge, the Boston & Lowell, Boston & Maine, Eastern, and the Fitchburg, and the narrow-gauge road, Boston, Revere Beach & Lynn, have their stations on the northerly side. Laying out the narrow-gauge road, the traffic in and out of the city is very evenly divided between the northern and southern roads, the former carrying about 1,000 more a day than the southern.



Laufman Screw Car-Brake—Details.

But, counting in the narrow-gauge, the discrepancy is more marked, reaching over 4,500 passengers. Taking the mileage basis however, the southern roads have the advantage, as they carried the equivalent of 393,648,366 passengers one mile, while all five of the northern roads only carried the equivalent of 326,120,618 passengers the same distance.

To accommodate this immense traffic to and from Boston, there are about 800 trains every week day. On Sundays there are 162 trains running in and out of the city, and, with four or five exceptions, every one of them is run in violation of the law, though it is very doubtful if a dozen people could be found willing to have the law enforced. Few persons ever stop to think how light the average passenger traffic is, for, as it happens, the great bulk of suburban passengers come into the city in the morning, when the in-



Automatic Re-starting Injector.

coming trains are crowded, and return home in the full trains of the late afternoon. But it should be recollected that the outgoing suburban trains in the morning and the incoming ones of the late afternoon are almost empty. This fact brings down the average number of passengers to a train the year through to from 90 on the Fitchburg to 163 on the Eastern, being an average on all the roads of 128. The average trains on the several roads range from 3½ to 7 cars, and the average number of passengers to a car varies from about 19 on the Lowell to 35 on the New York & New England. For purposes of comparison, the table below will be found interesting:

	Trains per day— Week day.	Sunday.	Per train— No. cars.	Per train— Pas- sengers.
Boston & Albany.....	126	28	6.0	136
B. & Lowell.....	112	8	6.0	112
B. & Maine.....	102	27	6.0	156
B. & Providence.....	100	11	6.6	129
Revere Beach.....	40	26	3.3	95
Eastern.....	94	19	5.0	163
Fitchburg.....	84	19	4.4	90
N. Y. & N. England.....	48	8	3.6	126
Old Colony.....	92	18	7.0	152
Total.....	708	162	5.3	129

"It will be observed from the first table above given that

all the roads, with two exceptions, increased the number of passengers carried the past year over the number in 1883. The Revere Beach in 1883 had a miniature rate war with the Eastern, during which it carried passengers between Boston and Lynn for 5 cents. Thousands availed themselves of the low rates, and a tremendous business was done. The past year rates have been maintained, and the travel has consequently been only what would legitimately belong to the road. The other exception is the New York & New England, and the reason for the falling off is easily found. On Jan. 1 last the suburban fares of 5 cents for 5 miles or less were advanced 25 per cent. by Receiver Clark, and, while there has been a gain in revenue of 12 per cent., there was a noticeable decrease in the number of passengers carried, large numbers availing themselves of the facilities afforded by the street railways. While the number of suburban passengers carried in October, November, and December showed a gain of 22,000 over the corresponding months of the previous year, the remaining nine months showed a loss of nearly 70,000.

A gratifying fact connected with the immense traffic shown on the various Boston roads is the safety that attends it. Out of nearly 51,600,000 carried during the year, only one in 10,000,000 was killed, and, where one passenger was injured, nearly 2,000,000 were carried in perfect safety."

#### Investigation of a Rochester & Pittsburgh Accident.

The New York Railroad Commissioners, under date of Albany, Dec. 24, 1884, have made the following report of an investigation of an accident on the Rochester & Pittsburgh Railroad in the early morning of Nov. 17, 1884, through the parting of a train, by which D. J. Killen was killed:

The facts attending the above accident, as developed by testimony taken before Commissioner Rogers, were as follows:

Freight and coal train No. 46, while going down a grade of 89 ft. to the mile just west of West Valley, parted, either from a pin jumping out or from a sudden jerk breaking a link. The break was not at first discovered. The rear part of the train consisted of three box cars, three coal cars (gondolas) and one caboose car. It got under such rapid headway that the two brakemen and conductor left thereon were unable to stop it, and it collided with the forward part of the train just east of Riceville, destroying four cars and injuring more or less nine others and killing one of the brakemen.

The train consisted of 38 cars in all, and was manned by three brakemen and a conductor. So far as the testimony showed, they performed their duty as well as they could under the circumstances. The rails were frosty and the engineer testified that he was unable to prevent the train going at a higher rate of speed than the rules of the company provided, namely, 12 miles an hour.

The Board is of the opinion that on roads with such steep gradients as those on the Rochester & Pittsburgh three brakemen are too few to keep under thorough control so long and heavy trains as those run, and recommends that at least four brakemen be required to accompany such trains.

It also appears from the testimony that box cars were placed in the train intermediate between coal cars, and that the brakeman was afraid to get off from the box cars on to the coal cars, in consequence of the high rate of speed that the train had suddenly acquired. The Board is of the opinion that in making up the trains the box cars should be put all together at one or the other end of the train, and so recommends.

The Board also suggests to the Rochester & Pittsburgh Railroad to consider the propriety of attaching two chains to each coal gondola, long enough to allow for the curvature of the track, so that if the link-and-pin connection fails, the chain will come into action.

#### Annual Report of the New York Railroad Commissioners.

The financial condition of railroads in the state, as reported to the Legislature in the second annual report of the Board of Railroad Commissioners, reflects severe commercial depression. "The conditions existing to-day," says the report, "although not yet so serious, are similar in many respects to those existing 10 years ago in the long period of depression following the panic of 1873. Over-production of almost every staple article of human consumption seems to obtain throughout the civilized world to a greater or less extent, and in no branch of business has this, together with excessive competition, been more severely felt than in transportation. For many years four trunk lines sufficed to carry the surplus of the crops from the West to tidewater. Now there are seven. The difficulties of settling the fierce rivalries between the four were great; between the seven they have proved thus far insurmountable. A war of rates has broken out, of which, at this writing, no one can see the outcome. It looks as if the struggle for existence had begun, of which the result will be the survival of the fittest; the financial death of others, with its attendant distress and loss of property. In the month of June the New York, West Shore & Buffalo Railway Co. went into the hands of a Receiver. The quarterly reports to this office develop the fact that for the 2 months and 9 days preceding the operating expenses had exceeded the gross earnings by \$312,958. For the 3 months and 21 days ending the 30th of September, the gross earnings exceeded operating expenses by \$87,337.15. The Receiver of the property being under obligations alone to earn operating expenses, and with the hope of increasing the business by a radical reduction, about the 20th of October reduced the rates to the unprecedented figure of 1 cent per mile for the transportation of passengers. A corresponding reduction was made in freight charges. These rates have been met by the New York Central & Hudson River Railroad Co. It is needless to dwell upon the demoralization, fluctuations, and loss incident to such a condition of affairs as the above. It is urged that one lesson to be drawn is the lack of wisdom on the part of the state of permitting only 13 men who can secure subscriptions of \$10,000 per mile, with 10 per cent. thereof paid in, to build a railroad anywhere they see fit without an expression from the state of the public exigency for the same. A railroad cannot be built without the state delegating to its promoters the highest power it possesses over property—the right of eminent domain—the right to take private property for public uses. The state itself never exercises this sovereign power except in cases of public necessity. Why should it thus delegate it to any 13 men to be exercised for mere private gain, frequently at the expense of vested rights and grave public interests? When the state has undertaken the control of railroads by the creation of supervisory boards, and has determined to exact the highest standard of service at reasonable rates of freight and fare, it would certainly seem as if a corresponding obligation rested upon it to protect existing rail-

roads from useless and disastrous competition by unnecessary new ones. A road struggling along with disastrous competition with an unnecessary parallel road pleads poverty and financial inability to comply with every recommendation of the board, looking to better maintenance or more convenient operation. Even those measures absolutely necessary for the safety of travel are often neglected, and when recommended by the board strenuously resisted upon the ground that the road is not even earning fixed charges. The objection is unanswerable when made to recommendations for more convenient or agreeable maintenance, but is not accepted by the board as a reason for not complying with recommendations to insure the safety of travel.

## SUMMARY OF BUSINESS OF THE YEAR.

In spite, however, of commercial depression, excessive competition and unprofitable operation, a prodigious business has been done by the railroads during the last year.

The totals for all roads and the details for each are given, with great particularity, in the second volume of this report. A few of the grand totals and most important final results are given here as follows:

	1884.	1883.
Total number of tons of freight carried one mile.....	9,322,518,571	9,266,216,623
An increase of 00.59 per cent.		
Average charges per ton per mile.....	0.8636 cts.	0.89 cts.
Average expenses per ton per mile.....	0.6278 "	0.64 "
Average profits per ton per mile.....	0.1988 "	0.25 "
Total number of passengers carried one mile (exclusive of elevated roads).....	1,729,653,620	1,720,377,410
An increase of 00.54 per cent.		
Total earnings.....	\$126,204,164	\$133,980,625
Average charge per passenger per mile.....	2.08 cts.	2.10 cts.
Average expense per passenger per mile.....	1.61 "	1.55 "
Average profit per passenger per mile.....	0.44 "	0.55 "
Total operating expenses.....	\$86,891,769	\$86,857,699
Total paid for interest.....	26,832,808	23,156,144
Amount of dividends paid.....	17,892,315	18,261,124
Percentage of net earnings to cost of road and equipment, as claimed in their reports.....	3.38	4.21
Total miles of road built in New York state.....	7,297.89	7,215.94
Total amount of stock and debt, Sept. 30.....	\$1,268,220,758	\$1,194,861,078
Total cost of road and equipment, as claimed in their annual reports.....	1,160,739,434	1,116,997,410

The report goes on to speak of the inducements that certain cities, Boston particularly, are holding out to shippers in improved terminal facilities, and in this connection cautions the legislature "that no unwise or onerous regulations be imposed upon the railroads entering our state or upon the terminal facilities at New York city that would divert from that port the golden streams of commerce now centering there."

Figures are submitted in the report giving the freight business done for 10 years past by the New York Central and Erie Railroads and by the canals. These figures show that the abolition of canal tolls in 1882 has not resulted in an increase of canal tonnage—a decrease, instead, being recorded; but the Commissioners urge that this showing should not induce less care of canal interests than formerly, as such interests must always be of value as a regulator of railroad freight charges.

Complaints received by the board during the year have borne on a great variety of subjects, complaints relating to discrimination or unreasonable freight rates leading in number. The complaints alleging discriminations as between persons are generally based upon the ground that the road compels the shipper to contract to ship all his goods by the road in question, and by no other line or canal; otherwise he is charged higher rates than his neighbor or competitor. The board condemns all such contracts on grounds of public policy. The complaints alleging unjust discrimination as between places generally arise from the fact that at intersecting or competitive points rates are lower than at intermediate or non-competitive points. Those living at the intermediate or non-competitive points claim that their rates should be no higher than at the competitive points. The subject is one giving rise to much difference of opinion. The board has not been unanimous in its decisions in several of these cases, although it has reached unanimously the following conclusions:

First—There should be entire publicity of railroad rates, whether the same be tariff or special rates.

Second—Railroads should not, as a general rule charge more between a terminal and an intermediate point, for a like class and quantity of freight, than is charged between such terminal and a more distant point, even though at such more distant point there be a railroad or water competition, unless railroads can affirmatively establish such circumstances governing such competition as justify the higher charge for the shorter distance.

Third—Any form of contract or any kind of discrimination against shippers, which compels citizens to refrain from freely using the canals of the state in preference to railroads, is against a sound public policy and ought not to be permitted.

Fourth—There is no form of specific rate-fixing legislation which can be at present recommended. Such legislation is not advisable in this state until it is established that all proper modifications in rates and correction of existing wrongs cannot be obtained under existing laws, with the amendments as are hereafter recommended.

Touching the new rule of the board requiring quarterly statements from all railroad companies, the report pleads that it has taken time for willing roads so to change their system of bookkeeping as to comply with the rule, but of such roads there is hope. Others, on the contrary, have shown reluctance to give the needed information. Several cases of this kind came to time only when cited to appear and show cause why complaint should not be made to the Attorney-General against them for non-compliance. To prevent repetition of this experience, the Commissioners ask for a law which shall attach a penalty to companies that fail to meet promptly the requirements of the board. Continuing the subject of quarterly publications, the report says:

"In order that the stockholders and others interested, and the public, may have the full benefit of the important information contained in these quarterly reports, the same publicity should be given to them that is now given to the quarterly reports of banks. In fact, the reasons seem to be equally imperative for such publication. The stock of these roads is held all over the state and country, and the income of many persons is derived from railroad investments. These, and the people of the state who conferred this right of eminent domain upon these corporations for public use, are entitled to the most accurate and also the earliest information practicable of their financial and other condition; hence these reports should be published in at least one newspaper where the principal office of such company may be. It is hoped that, under a vigilant enforcement of the requirements of the quarterly report system,—with the same public-

ity as now required in the case of state and national banks, railroad stocks and bonds will cease to be a football in the market, but will be sought for by permanent investors as the best securities of the state. An act similar to that now in force in relation to the publication of quarterly reports by banks will be submitted."

Under the law governing applications for increase of capital stock, a number of railroad companies have applied to the board to approve their determinations to increase their capital stock. The board early took the view that the law was placed upon the statute books for the purpose of preventing the practice of increasing capital stock for watering purposes; that it imposed upon the board the duty of determining, before granting its approval, that the proposed increase was necessary for the construction and operation of the road, and that its financial condition was such as made the increase a matter of just public policy. Believing, then, that the granting of an approval was not a duty to be perfunctorily performed, the board adopted the following rule:

"That in all cases of application to this board on the part of any railroad for permission to increase its capital stock, the matter shall be referred to a committee of the board, which shall cause an investigation to be made by the accountant of such railroad company's account of construction, equipment, amount of stock and debt outstanding, and its financial condition generally, with such other information as may be necessary for proper action by the committee and board."

This has been acted upon, and each application determined or still pending has been followed by a thorough investigation of the accounts of the applying road before the approval has been granted or withheld.

The physical condition of the railroads of the state has occupied a large portion of the attention of the board during the year. The Inspector of the board has instructions to examine every bridge, trestle and even cattle guard of those roads he visits. Every fault of construction, weak timber, etc., is pointed out to the accompanying officer. He also makes a report to the board. A copy of the same, or a synopsis thereof, is sent to the road, with a recommendation to correct such faults as may be developed. An opportunity is given for a hearing, if the road so desires. From time to time one or more members of the board have inspected, as occasion required. In every case this has been done when the condition of the road has been reported such as to render its operation dangerous. In such cases the board has inspected with great detail, examining every structure. The companies have complied, as a general rule, with the recommendations of the board in those matters involving safety. There are some exceptions, however, and the board is considering the propriety of turning them over to the Attorney-General for his consideration and action.

The board has given special attention to the inspection of bridges. On Jan. 29 a circular was addressed to various companies asking for drawings of all the truss bridges in use by such companies, and the history and dimensions of the same. The circular asked also for strain sheets and for plans of the general standard of floor system in use, whether for large or small openings. The request was accompanied by a recommendation of a floor system for all openings, including cattle-guards strong enough to support a derailed truck, with guard rails to guide the wheels of the same in such contingency. One of the first results of the circular was that managers began to find weak places in their bridges of which they had no idea before, and in many cases the bridges were strengthened before drawings and strain sheets were sent in to the board. The necessity of this work is particularly brought about by reason of the great increase in the weight of rolling stock within the last few years. There are many bridges still standing, built when the maximum weight of locomotive and tender was 55 tons, and the maximum weight of a freight car, with its load, was 19 tons. Locomotives with tender frequently now weigh 87 tons, and freight cars with their loads 35 tons. In the early days of bridge building, particularly of iron bridges, it was the habit to construct trusses of complicated form, the accurate calculation of the strains on which it is very difficult, and in some cases impossible, to determine. An approximation close enough for practical purposes is always reached, however. A better practice now prevails, and trusses of simple form, admitting of no ambiguity, are alone accepted by the best engineers. In exceptional cases, complex trusses have to be resorted to, but they are avoided as much as possible. As can be well imagined, there is an immense amount of this work to do, there being about 3,500 bridges in the state. The board trusts, however, within the next year to have an accurate record of the dimensions and strain brought on every member of every truss bridge in the state; in no other state has this, as yet, been done.

Much attention has been given by the board to automatic car-couplers, which must be adopted by all companies in the state by July of next year. As there are many inventions, the Commissioners hope that within the coming year the law of the survival of the fittest will assert itself. Automatic air brakes will be in general use by the coming July, as required by law. If the code of signals recommended by the Time Convention be adopted by all the roads, the necessity of legislation on the subject will be thereby removed.

In consequence of increased precautions against accident, the showing for the year ending Sept. 30 is an improvement over any preceding year, notwithstanding the increase of mileage by the opening of the West Shore road from Albany to Buffalo. Out of 481 persons killed, 309 were killed while walking on tracks or in attempting to cross in front of trains, and 147 deaths were of employees. The board recommends that roads be compelled to put low railings along the upper edges of freight cars as a means of saving brakemen who may slip or fall when at work. The report also reminds local authorities that on application to the Supreme or County Court they can compel railroad companies to guard the crossings by gates, watchmen, or signals. In regard to the amendments to the general railroad act, which the board recommended last year, the board again recommends them for consideration, especially as they were on the point of final passage when the Legislature adjourned. In this connection the report says:

"The amendment, which was designed to check the construction of unnecessary railroads by providing that no incorporation of a road should be permitted until the public necessity for its construction was certified to by this board, or by a General Term of the Supreme Court, did not meet with the approval of the last Legislature. Since that time the misfortunes of the West Shore Railroad Co. have caused many, particularly those interested in its securities and its competitors, to regard such a provision as a public protection and necessity. While the state should interfere with caution to prevent competition, from which flow many public benefits, yet, on the other hand, it ought not to be permitted to become ruinous, destructive and demoralizing. Where there are railroads enough to amply serve the public, further construction means bankruptcy to new investors, and in the end, through a 'pool' or some other device, imposes upon the public an unnecessary burden. A further amendment suggested and deemed wise, is one to protect more vigorously the rights of minority stockholders. They ought, in number and amount sufficient to guard

against abuse, to have a right to call stockholders' meetings, and also ought to be able to ascertain the financial condition of their road from the books, through the Board of Railroad Commissioners or some other agency. This provision is in force elsewhere, and seems to afford protection where, under our statute, it is wanting. By the amendment of Section 9 in 1880, the state prohibited the increase of capital stock without the consent of the stockholders and the approval of this board. The section by which boards of directors may bond roads, was not, however, amended. There would seem to be no good reason why it ought not to be in like manner amended as was Section 9. The creation of a lien taking precedence of the stock surely ought not to be without the consent of those holding the stock. To the amendments heretofore considered, the board will add one embodying this suggestion. The design of the changes proposed in the leasing act of 1884 was to prevent the leasing of railroads without the approval of the stockholders. It is eminently just that those owning the road should rather decide so important a question than that it should be allowed to be done, secretly perhaps, by their agents, the directors."

As to canal competition, the board has determined that "any form of contract, or any kind of discrimination against shippers, which compels citizens to refrain from freely using the canals of the state in preference to railroads, is against a sound public policy, and ought not to be permitted." In the course of its investigations the board has ascertained that railroads generally disregard this principle, and insist upon their right to require these contracts from shippers as a matter of right and of self-protection. In the opinion of the board such contracts are neither necessary for the protection of railroads from canal competition, nor are they for the public interest. Under the duty imposed upon it, the board will submit to the Legislature an act intended to correct this abuse. The report closes by asking such legislation as will enable the board to enforce the provisions of the railroad law. Commissioners John D. Kerman, William E. Rogers, and John O'Donnell sign the report.

## Transportation in Congress.

In the House on the 8th:

The Inter-state Commerce bill as amended was finally brought to a vote and passed, 150 members voting for it and 75 against. The bill is referred to elsewhere.

In the Senate on the 10th:

The Inter-state Commerce bill came up and there was a brief discussion, in the course of which notice was given that the Senate bill on the subject would be moved as a substitute for the Reagan bill passed by the House.

In the House on the 12th:

Mr. Rogers (N. Y.) introduced a bill to authorize the issue of \$5,000,000 United States bonds to the state of New York, to be used for the enlargement of the Erie and Oswego canals to a sufficient capacity to pass vessels of war 25 ft. in width and 100 ft. in length, and merchant vessels of 600 tons burden, propelled by steam. All war vessels of the United States, all munitions of war or stores, or supplies for the use of the general government, shall be allowed to pass through the canals free of charge. The work shall be done under the supervision of the Chief of Engineers of the United States. Referred.

## TECHNICAL.

## Locomotive Building.

The Taunton Locomotive Works, in Taunton, Mass., recently completed two locomotives for the Old Colony road, with 17 by 24 in. cylinders and 63 in. driving wheels.

The Old Colony shops, in Boston, recently completed a passenger locomotive, with 16 by 24 in. cylinders and 63 in. drivers, for the road.

## Car Notes.

The Laconia Car Co., in Laconia, N. H., has recently reduced the wages of its employees from 10 to 15 per cent.

In some quarters a better feeling is reported, with more inquiries for new cars than have been noted for some time. So far few actual orders are reported, but car-builders are looking for an improvement in their business more than they have been doing for some time past.

## Bridge Notes.

The Boston & Maine Co. is preparing plans for a double-track iron bridge over the Merrimack River at Newburyport, Mass., to take the place of the wooden bridge now in use there. The present piers will probably be used, as they were built for a double-track bridge.

The Passaic Rolling Mill Co. in Paterson, N. J., has just completed a draw span 105 ft. long over Bass River near Beverly, Mass., on the Eastern Railroad.

## Iron Notes.

Mary Pratt Furnace in Birmingham, Ala., which has been changed from a charcoal to a coke furnace, has gone into blast.

The Union Mills in Pittsburgh resumed operations last week after a short stoppage.

The iron works of Brown, Bonnell & Co. in Youngstown, O., which have been idle for some time, started up last week.

Of the furnaces at Ironton, O., the Alice, Hecla and Belmont are in blast and Olive Furnace is to start up as soon as repairs are completed.

The Jefferson Steel & Iron Co. has been organized to build a rolling mill and steel works in Birmingham, Ala. The incorporators are owners of the Sloss Furnace in that place.

The hammer and puddling departments of the Black Diamond Steel Works in Pittsburgh have resumed work after a stoppage of several weeks.

## The Rail Market.

Steel Rails.—The market is quiet with only small sales reported, and quotations continue at \$28@29 per ton at mill, although it is said that \$27.50 has been taken for desirable orders. No inquiry for large lots is reported just now.

Rail Fastenings.—Quotations are nominally 2 cents per pound for spikes in Pittsburgh, 2.25@2.50 cents for track bolts and 1.65@1.75 for splice-bars. No sales are reported and the market is very dull.

Old Rails.—Some small sales of old iron rails are reported at \$17@17.50 per ton at tide-water, but holders are asking \$18 for fair lots. Old steel rails are quoted at \$16@17 per ton in Pittsburgh, according to length, and there is an increasing demand for them.

## Catalogue of Seibert's Cylinder Oil-Cups.

The Seibert Cylinder Oil Cup Co., of Boston, Mass., has published a catalogue which illustrates and explains the construction of a form of sight-feed lubricator specially adapted to all the slide valves and pistons of a locomotive. By means of a simple attachment the Westinghouse pump can also be continuously lubricated from the same lubricator. The advantages of a continuous sight-feed are too obvious to require further notice here.

## Automatic Train Indicator.

An exchange says: "A model has been exhibited at Berlin showing, on a small scale, all the trains running on a railway system. The object is to prevent collisions by having constant intelligence of the relative positions of the trains. The lines are shown on a plate of dull glass, the stations being numbered. Small arrows, representing the trains, are moved by means of an electric current and brushes on the engines making contact with zinc bands along the rails, exactly in ratio to the real progress of the trains."

This is very ingenious, but if a brush failed to catch on, wouldn't a collision be likely? The train dispatcher ought to know the position of the train without any possibility of error.

## The Last of the Fontaine Locomotive.

The Toledo (O.) *Commercial Telegram* of Jan. 12 says: "The two Fontaine engines constructed a few years ago will be remembered by all railroad men, one of the engines, with a freight train attached, having made 15 miles in 10 minutes, or 90 miles an hour, on the old Canada Southern track, between this city and Monroe, Mich. The two engines were constructed at a cost of \$45,000, including the expense of the tests. They were tried on several roads, only to demonstrate the mechanical axiom that what is gained in speed is lost in power. A greater speed than 60 miles an hour is not considered an advantage, and the saving in fuel promised in this engine was not proved. The engines were tried on the Harlem River, the Canada Southern and the Oxford & Port Austin railroads, and Saturday the closing scene in their history occurred by their sale for \$2,700 to the Lake Erie & Western Railroad. This road will place them in the shop, where they will be reduced to the ordinary style of locomotive, and the Fontaine engine will only live in memory."

## The Ames Car-Coupler.

The "Ames Automatic Car Coupling Co.," whose stock is being sold in New England, is not the owner of the G. H. Ames coupler which has recently been recommended by the Massachusetts Commissioners, although some misapprehension has naturally arisen from the similarity of names. The company referred to is said to own the Mitchell, the Ames (of Canada) and some other patents, but none of those which the Commissioners recommended.

## Engineers' Club of Philadelphia.

At the regular meeting in Philadelphia, Dec. 20, Past President Frederick Graff presided; 35 members and 3 visitors present.

Mr. Geo. S. Strong read a portion of the first of the series of papers upon the Future of Locomotive Building. It contained a review of the present and past fast train service in Europe and America, with a discussion as to the possibilities of the future, under the following headings: Fast Express Trains in England; Fast Express Trains on the Continent; Fast Express Trains in America (in all of these the journey, speed and running average is given); Are Still Higher Speeds Wanted? Recent Multiplication of Freight Traffic on American Railways; Train Resistance; Resistance of Grades; Resistance of Curves; Atmospheric Resistance; Have We Reached the Maximum Speed in Our Locomotives? Boiler Power Difficulty; Possible Ways Out of the Boiler Difficulty; Economy of Fuel; English vs. American Locomotives; Comparative Cost of Slow and Fast Traveling. This and the following papers were intended to be a complete analysis of the problem of rapid train service, both passenger and freight, and of the locomotives now employed in such service, and a consideration of the form and characteristics of the engines which must meet prospective demands. Methods of construction, shop practice and the necessity of more uniformity in standards are among the important topics.

Gen. Russell Thayer read a paper upon the Navigation of the Air, with a Description of the Aerial Ship, and the Theory and Practical Operation of its Motor.

Mr. Lloyd Bankson presented, for Mr. H. W. Spangler, an illustrated paper upon Measuring Chimney Draft.

The Secretary presented, for Mr. P. A. Taylor, an account of the enlargement of the East Mahanoy tunnel, East Mahanoy Railroad, Schuylkill County, Pa. This tunnel is 3,411 ft. long, and was completed during the year 1862. In the spring of 1876 it was decided by the Philadelphia & Reading Railroad Co. to enlarge it, on account of its being too low to permit the passage of engines having the standard height of smokestack adopted by the company. To do the work it was first thought that a sufficient amount of the roof could be taken off, but, on account of slips and falling rocks, caused by the fact that when the tunnel was driven several of the coal measures were cut through, it was particularly dangerous and necessitated timbering in some places; the risks also of detaining trains by having the necessary false works in the tunnel to reach the roof were great, and the coal trade being particularly brisk at that time, the idea was abandoned, and it was decided to take out the bottom, a portion of one side and a part of the bench that had been left in originally by the East Mahanoy Railroad Co. On May 29, 1876, the work was started, and finished Sept. 9 of the same year, costing about \$41,000. The length taken out was 3,411 ft., average depth 2 ft. and width 12 ft.; all of which was through conglomerate rock, known only in the anthracite region. In addition to taking out the bottom, various points of the roof had to be taken down, as well as on the sides of the tunnel, as noted above. A force of about 225 men was employed in the work, one-half working during the day drilling holes for the blasts and getting everything ready for the explosion of the shots, which generally took place about 10 o'clock at night, after the fast Centennial Express had passed through. The night force was employed in blasting. No. 2 dynamite was used, and 100 shots put off at one time by electricity. The debris was then cleared away, and the track blocked up to allow trains to pass through. From 10 o'clock until 2 o'clock, during the night, was the only time that trains entirely ceased to run through the tunnel. They labored under great disadvantage for the want of proper ventilation. The shafts which had been sunk during the construction of the tunnel had been filled up for some years, and the smoke caused by the numerous trains passing through, as well as that produced by the blasts, had to seek an outlet at the east and west ends of the tunnel. During the whole progress of the work but one train was delayed, and that only five minutes, and the only accident that occurred was the killing of one laborer, caused by his falling under the small engine which was used for hauling away the small trucks loaded with debris from the tunnel. In the grades of the original road-bed of the tunnel there was a slight adverse grade from the west end to a point about midway, causing the water, percolating through the seams of the coal measures, to drain partly into the Susquehanna and partly into the Delaware. Now there is a continuous grade with the trade, relieving a heavy pull of the loaded coal trains after entering the tunnel.

Mr. John C. Trautwine, Jr., presented an illustrated description of a design for a 100-ft. turntable, by Mr. C. O. H. Fritzsch, of New York, for the New York, West Shore & Buffalo Co., for use in their car shop. It was to carry a six-wheeled shifting engine, 30 ft. long, weighing 90,000 lbs., and two cars, each 36 ft. long, weighing 24,000 lbs. each; total extraneous load, 138,000 lbs. The table is turned

by a steam engine, which with its boiler, is carried upon an iron platform, about 7½ x 18 ft., attached to one side of the turntable near the middle of its length, and thus revolving with it. The power of the engine is communicated by means of bevel gearing and a long shaft running along the centre-line of the turntable, to a wheel in each end carriage.

## THE SCRAP HEAP.

## Preparing for Accident.

The Boston & Albany Railroad Co. is getting ready to put what are known as "emergency cases" on its caboose cars. These cases are made up of a small box inclosed in a tin case, and are intended for service in case of accident to any of the train hands. In each of them are 11 articles, including styptic cotton to control bleeding, absorbent cotton to apply to a bruise, bandages, plaster for strapping wounds, rubber bandages to bind around a crushed arm or leg, oiled paper, artery forceps, needles, etc. The articles are all numbered, and printed instructions tell what each is intended for. Similar cases are in use on the Pennsylvania and some other roads.

## A Brave Conductor.

A dispatch from Petersburg, Va., Jan. 13, says: "To day, while No. 6 east-bound freight train on the Norfolk & Western Railroad was passing a point five miles from this city, one of the wheels of the caboose burst, throwing the car from the track, but leaving the trucks on the road-bed. This train was followed by two other trains, a freight and a passenger. In order to prevent what would have proved a serious wreck and a probable loss of life, the conductor of No. 6 jumped from the train while it was going at full speed, in order to wave down the approaching trains. He was thrown down an embankment and considerably bruised. He then walked back a distance of a mile and waved down the approaching trains, but the freight train, which was coming on a down grade, could not be checked in time. The locomotive collided with the trucks of the caboose of No. 6 train, which were on the track, and was somewhat damaged. In consequence of the accident east and west bound passenger trains were delayed."

## "Blame It All on Me!"

A grand crash—a shower of flying splinters—bump! bump! and the coaches settled back on the rails, and the passengers picked themselves up and cried out to each other that there had been a collision.

So there had. Freight No. 17 was pulling in on the side track, but the day express thundered down on her while the long train was yet a third of its length on the main track.

Some one had blundered. Some one's watch was off time. Some one must be held responsible for the accident.

Under the overturned locomotive was the fireman—dead. Near him was the engineer, pinned down to the frozen earth by one of the drivers, and when he had been relieved a doctor, who was among the passengers, knelt beside him and said:

"Arm broken—leg broken—foot crushed to a pulp. He cannot live."

Who had blundered? Who had disobeyed orders? The conductors of the two trains were comparing watches and orders, when the engineer beckoned them.

"I alone am to blame!" he whispered. "I wasn't due here until 10:10, and it was just 10:05 when I struck the freight. I was ahead of time—running on her time."

"So it was—so it was," whispered the two conductors.

"This morning when I left home," continued the engineer, "the doctor was there. Our little Jennie—our five-year-old—was sick unto death. In her delirium she kept crying out: 'Don't go, papa—don't leave little Jennie to die!' It was like a knife in my heart to leave her, but go I must. I was leaving the house when the doctor put his hand on my shoulder and said: 'Tom, my boy, by 6 o'clock to-morrow morning she'll either be dead or better.'"

"What a long day this was to me!" he went on after a bit.

"When I pulled out of the depot to-night, headed for home and Jennie, I wanted to fly. I kept giving her more steam, and I kept gaining on my time. We aren't due till seven, you know, but I wanted to be in at six—aye! an hour before that. When the thought came to me that Jennie might be dead when next I entered the door, I should have pulled—the throttle wide open if the fireman hadn't grabbed my arm."

"Poor man!" they whispered, as he shuddered with pain and seemed to be exhausted.

"Yes, blame it all on me!" he whispered. "No. 17 had five minutes more to get in, and she'd have made it all right, but I stole her time. And now—and now—"

He lay so quiet for a moment that the doctor felt for his heart to see if it still beat.

"And now—that's her—that's Jennie. She's beckoning—she's calling! Right down the track—over the high bridge—through the deep cut—I'm coming—coming!"

And men wiped tears from their eyes and whispered:

"He has found his child in death!"—*Detroit Free Press.*

## Praising the Engineers.

The Delaware, Lackawanna & Western Railroad is reported to have had the least number of accidents during the year 1884 of any road of comparative length in the state, in consequence of which, on New Year's Day, Superintendent Reasoner caused to be sent to each engineer a letter, in which, after wishing them a Happy New Year, he praised them for their carefulness, and earnestly hoped that, if possible, they would do still better this year. Such words of encouragement from their Superintendent are, as one engineer terms it, more bracing than presents of monetary value.—*Newark (N. J.) Advertiser.*

## A Duel on a Freight Train.

A dispatch from Louisville, Ky., Jan. 9, says: "George Jackson, conductor, and James Wilson, brakeman of a freight train on the Louisville & Lexington Railroad, were brought to their boarding house in this city last evening suffering from wounds inflicted upon each other in a duel fought with bowie knives on the top of the train, flying at the rate of 30 miles an hour. Jackson was coming from Lexington with his train, when he and Wilson quarreled over a woman in the caboose. The men were about to come to blows, when a proposition was made to fight a duel on the top of the caboose with bowie knives, with which both men were armed. No sooner was the proposition made than it was accepted and, drawing their weapons, the men climbed to the top of the car. The other employees on the train gathered around to witness the combat. The train was whirling along at the rate of 30 miles an hour, between Christiansburg and Eminence, when the men announced themselves ready for the battle. They rushed upon each other and closed in. Blood trickled from the knife blades and bespattered the roof of the car. It was apparently a combat to the death, but neither man showed signs of mortal wounding. The train sped along, the engineer keeping a close lookout ahead and little dreaming of the terrific fight going on behind him. The warning signal of a low bridge was sounded and for a few moments the duelists separated and hugged close to the

roof of the car. Whizz went the train through the bridge, when almost instantly the men were on their feet and at it again. Jackson received a slash across the breast, causing a frightful wound, but notwithstanding the wound he seemed to fight all the harder. He rushed upon his antagonist with the ferociousness of a tiger, and would have buried his bowie to the hilt in Wilson's body had it not been for the train just at that moment flying around a curve, causing a lurch and the throwing down of Jackson. He was on his feet again, however, in an instant, but the trainmen, not desiring to be witnesses to a murder, put a stop to further proceedings. Both were badly hacked, Jackson got the worst of the duel, the slash across the breast being a serious wound."

## A Singular Accident.

The Alexandria (Va.) *Gazette* of Jan. 7 says: "A very remarkable accident occurred to an engine on the Virginia Midland Railroad on Monday night, but fortunately no one was hurt. When a passenger train bound north was near Midland station a connecting rod of the engine broke, completely demolishing the cab, knocking it back toward the tender, and catching the engineer and fireman under it. The engine being under no control, rushed on at a rapid speed for some time, with no prospect of stopping, when the engineer succeeded in crawling under the debris of the cab and cut the rubber hose of the air-brakes, bringing the train to a standstill with no further damage. After the train had stopped the driving wheels of the engine revolved so rapidly as to wear out the rails on the spot where the engine was standing. The train reached this city a little behind time without further accident."

## Imagination.

A good joke has leaked out about the baggage-master on Conductor Benedict's train on the Naugatuck Railroad. The other day he mournfully took on at Bridgeport a heavy casket box, and all the train hands supposed that they had a corpse for a passenger. Some remark was made that the box was rather light, and the baggage-master declared that he believed that the body was a resurrected one. Soon after leaving Bridgeport, this thought preyed upon him, and immediately his olfactory nerves were offended in confirmation of his theory. Forthwith he opened all the doors of the baggage car, and at length betook himself for refuge to the smoker, declaring that he could endure it no longer. Occupants of the mail and express compartments of the car also complained of the odor. When the train reached Winsted an undertaker called for the box, and asked permission of the station baggage-master to leave it in the baggage room. A mild but firm protest against keeping a corpse in his room over night was made. A similar appeal to the express authorities met with a prompt refusal. The undertaker smiled a regular business-style smile, unscrewed the box, and showed a new, empty casket.—*Hartford (Conn.) Times.*

## ANNUAL REPORTS.

The following is an index to the annual reports of railroad companies, which have been reviewed in previous numbers of the current volume of the *Railroad Gazette*:

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## Maine Central.

This company owned or leased and worked the following lines at the close of its fiscal year Sept. 30 last:

	Miles.
Portland, Me., to Bangor.....	137
Branches owned.....	207
Belfast & Moosehead Lake, leased.....	33
Dexter & Newport, leased.....	14
European & North American, leased.....	114
Eastern Maine, leased.....	19
Total.....	524

The system forms a main line from Bangor to the New Brunswick boundary line at Vanceboro, 251 miles, with branches reaching nearly every important town in the state. An important addition was made during the year, the Mt. Desert Branch, from Penobscot Switch (near Bangor) to Mt. Desert Ferry, on Frenchman's Bay, 41 miles.

The equipment consists of 82 locomotives; 93 passenger and 38 baggage, mail and express cars; 847 box, 1,079 flat and 48 caboose cars; 27 construction cars, 21 snow-plows and 15 flange-scrappers.

The general account is as follows:

Stock.....	\$3,603,300
Stock bonds.....	16,800
Funded debt.....	10,491,600
Scrip, P. & K. stock, etc.....	14,392
Bills, accounts and balances payable.....	852,891
Profit and loss.....	121,461
Total.....	\$15,100,444
Road and equipment.....	\$11,777,326
Lease accounts.....	1,768,333
Car purchase.....	200,919
Stocks and bonds owned.....	8,700
Bills accounts and balances.....	179,348
Shore Line bonds held in trust.....	750,000
Materials.....	412,486
Cash.....	2,332
Total.....	15,100,444

The funded debt consists of \$1,100,000 Androscoggin & Kennebec loan; \$486,500 Extension loan; \$756,800 Maine Central loan; \$1,160,700 Portland & Kennebec consolidated; \$425,000 Bath city loan; \$633,000 Leeds & Farmington bonds; \$1,000,000 Bangor city loan, assumed; \$4,169,600 consolidated bonds; \$444,000 collateral trust 5 s. and \$300 debenture 5s. The debt was increased \$791,000 during the year.

The traffic for the year was as follows:

	1883-84.	1882-83.	Inc. or Dec.	P. c.
Passenger.....	925,345	842,397	I.	82.048 9.9
Freight.....	743,540	745,073	D.	1.533 0.2
Service and switch.....	945,278	561,209	I.	84.099 14.9
Total.....	2,314,163	2,148,679	I.	165.484 7.7
Passengers carried.....	1,214,380	1,150,937	I.	63.443 5.5
Freight carried.....	49,615,168	45,302,055	I.	4,313,111 9.5
Tons freight carried.....	758,937	777,489	D.	18.552 2.4
Ton-miles.....	61,632,003	63,783,431	D.	2,151,428 3.4
Av. train-load:				
Passengers, No.....	54	54		
Freight, tons.....	83	86	D.	3 3.5
Av. rate:				
Per passenger-mile.....	2.42 cts.	2.53 cts.	D.	0.11 ct. 4.3
Per ton-mile.....	2.39 "	2.42 "	D.	0.03 " 1.2

The average passenger journey was 40.85 miles and the average freight haul 81.21 miles. The earnings per train-mile were 168.7 cents; expenses, 104.9; net earnings, 63.8 cents.

## The earnings for the year were as follows:

	1883-84.	1882-83.	Inc. or Dec.	P. c.
Freight.....	\$1,475,845	\$1,541,901	D. \$66,106	4.3
Passengers.....	1,197,413	1,147,307	I. 50,206	4.4
Mail, express, etc.,	143,115	146,327	D. 3,212	2.2
Miscellaneous.....	10,421	29,120	D. 18,699	64.5
Total.....	\$2,826,794	\$2,864,615	D. \$37,821	1.3
Expenses.....	1,750,714	1,836,706	D. 86,002	4.8
Net earnings.....	\$1,076,080	\$1,024,909	I. \$51,171	5.0
Gross earnings per mile.....	5,722	6,039	D. 317	5.7
Net earnings per mile.....	2,178	2,171	I. 7	0.3
Per cent. of exps.....	61.93	64.22	D. 2.29	

For the first nine months of the year there was a large decrease in freight and a small one in passenger earnings. For the last quarter, however, there was a heavy gain in passenger receipts and considerable increase in freight.

## The result of the year was as follows:

Net earnings, as above.....	\$1,076,080
Discount, premium, etc.....	1,231
Total.....	\$1,077,311
Interest.....	\$661,395
Rentals.....	189,000
Old accounts paid off.....	10,904
Dividends, 6 per cent.....	215,532
	1,076,831

Balance, surplus for the year.....	\$480
Balance from previous year.....	120,981
Profit and loss, surplus, Sept. 30, 1884.....	\$121,461

During the year 3,929 tons steel rails, 418 tons iron rails and 125,219 new ties were used; 46 miles of track were ballasted and 41.3 miles of new fence were built. The second track was extended 1.1 miles and 5.1 miles of new sidings built. Four bridges were rebuilt and a number of others repaired. Eight locomotives, 8 passenger, 4 baggage, 3 cabooses and 25 dump cars and a snow-plow were added to the equipment.

The President's report says: "The gains in the last quarter of the year, especially in passenger earnings, are attributable largely to the opening of our Mt. Desert Branch, upon which trains commenced running regularly June 23, 1884. In our last report mention was made of the construction of that branch, which adds 41 miles to our mileage, and enables us to reach the deep water at Frenchman's Bay at the most convenient point for Bar Harbor tourists, while at the same time it gives us a terminus at a point easily accessible to steamers and sailing vessels from all parts of Eastern Maine and the Province of Nova Scotia.

"The advantages to be gained by furnishing suitable facilities for business at that point were so apparent to the directors that they felt justified in making a large outlay in anticipation of freight and passenger traffic, not only during the summer season but also for the whole year. We have every reason to be gratified with the results thus far, and believe that this branch will continue to be a valuable feeder to the main line, fully justifying the wisdom of its construction.

"This company now operates 524 miles of road, making the largest number of miles operated under one management in New England. Of this road 393 miles are laid with steel, and the track, bridges and equipments are reported by the Railroad Commissioners of the state as being in excellent condition.

"As this road is all within the state of Maine, and extends over a large portion of its territory, our annual reports indicate fairly the condition of the business of the state. The result of this year's traffic shows that in a period of general business depression throughout the country, Maine has suffered proportionally less than other states, and that its manufacturing and other interests are fairly prosperous.

"Comparing the traffic with that of 1879, it may be noted that in five years the passenger earnings per mile operated have increased 33 per cent., and the freight earnings 17 per cent."

## Fort Worth &amp; Denver City.

This company owns a line from Fort Worth, Tex., northwest to Wichita Falls, 110.3 miles. Its capital stock is \$2,200,000 and the funded \$2,390,000 in first mortgage 6 per cent. bonds. The report is for the year ending Oct. 31.

## The earnings were as below:

	1882-84.	1882-83.	Inc. or Dec.	P. c.
Earnings.....	\$472,162	\$377,094	I. \$95,068	25.2
Expenses.....	251,160	219,091	I. 32,069	14.6
Net earnings.....	\$221,002	\$158,003	I. \$62,999	39.8
Gross earn. per mile.....	4,281	3,419	I. 862	25.2
Net ".....	2,004	1,433	I. 571	39.8
Per cent. of exps.....	53.01	58.09	D. 5.08	

Charges amounted to \$143,790, leaving a surplus of \$77,212, or nearly 3½ per cent. on the stock.

Trains ran 285,036 miles, an increase of 64,846 miles. The road carried during the year 139,238 tons of freight. The principal item of traffic was 7,614 car-loads of stock. The earnings per train mile were \$1.65; expenses, \$0.88; net earnings, \$0.77.

The President says that crops along the road were much below the average, and there was a decrease from this cause, but the general freight traffic increased 25 per cent. and the stock traffic 75 per cent.

The work of ballasting the road with stone has been continued, and fences have been put up at several points, in order to reduce the damages from killing stock.

He recommends an extension from Wichita Fall north to a point beyond the settled and inclosed farming lands. This is necessary to accommodate the cattle traffic. He also recommends that the surplus earnings be applied to the building of this extension, in order to avoid a further issue of bonds.

The road and equipment are in good condition and the trains have been run without accident during the year.

## Philadelphia &amp; Reading.

The full report of this company for the year ending Nov. 30, 1884, is not yet issued, but the following statements are presented, made up from the report of earnings presented by the Receivers, and from the President's report as read at the annual meeting on Monday of this week, presenting a fairly complete summary of the operations of the year.

The earnings of the railroad lines for the year were as follows, by the Receivers' statement:

	1884.	1883.	Inc. or Dec.	P. c.
Earnings.....	\$30,954,237	\$29,797,950	I. \$1,156,307	3.9
Expenses.....	17,776,959	15,250,450	I. 2,526,509	16.6
Net earnings.....	\$13,177,278	\$14,547,480	D. \$1,370,202	9.4

In comparing these earnings it must be remembered that the operations included the Central Railroad of New Jersey for the full year in 1884, but for six months only in 1883.

The net earnings in 1884 were made up as follows: Net on railroad lines, \$12,982,632; on canal lines, \$214,185; loss on steam colliers, \$14,094; loss on Richmond coal barges, \$5,445.

## The earnings of the Philadelphia &amp; Reading Coal &amp; Iron Co. for the year were:

	1884.	1883.	Inc. or Dec.	P. c.
Earnings.....	\$16,496,604	\$17,038,859	D. \$542,255	3.2
Expenses.....	16,154,679	16,117,087	I. 37,592	0.2

Net earn..... \$341,925 \$921,772 D. \$579,847 62.9

The net earnings of both companies, which are the sums from which all charges are to be paid, compare as follows:

	1884.	1883.	Decrease.	P. c.
Railroad Co.....	\$13,177,278	\$14,547,480	\$1,370,202	9.4
Coal & Iron Co.....	341,925	921,772	579,847	62.9
Total.....	\$13,519,203	\$15,469,252	\$1,950,049	12.6

The result of the year for both companies was as follows, full interest being charged in all cases, whether actually paid or not:

Net earnings, both companies.....	\$13,519,203
Debit balance, renewal fund.....	\$42,208
" profit and loss.....	38,237
State tax on capital stock.....	42,222
Interest and rentals, R. R. Co.....	15,609,500
Interest, Coal & Iron Co.....	1,142,286
	16,874,453

Deficit for the year..... \$3,355,250

The interest charged for the Reading Coal & Iron Co., is on all outstanding obligations not owned by the Reading Railroad Co.

## The traffic reported for the year was as follows:

	1884.	1883.	Increase.	P. c.
Passengers carried.....	24,011,768	18,195,264	5,816,504	31.9
Tons merchandise.....	8,811,236	8,416,788	394,448	4.6
Tons coal.....	11,879,907	11,449,373	430,534	3.8
Tons coal on colliers.....	543,141	531,403	11,738	2.2

The ton of merchandise in this statement is 2,000 lbs., but the ton of coal is 2,240 lbs. As with the earnings, the business of the New Jersey Central is included for only six months of 1883.

Some extracts from the President's report are given below:

"With reference to the increase of the floating debt and the difficulties arising therefrom the managers report:

At the close of the fiscal year, 1884, the floating debt of the Railroad Co., including Receivers' certificates, was \$12,088,241. Current liabilities..... \$7,530,815

Total..... \$19,619,056

The floating debt of the Coal & Iron Co., November 30, 1884, including Receivers' certificates..... \$2,003,255

Current liabilities..... 1,637,314

Total..... 3,640,569

Total for both companies, Nov. 30, 1884..... \$23,259,625

Total for both companies Nov. 30, 1883..... 18,065,207

Making the increase in the floating debt and liabilities for the year..... \$5,452,418

"The balance sheets will show the details of the current liabilities due on account of operations of the companies for the year, and the sums due by other lines, the amounts of materials on hand, debts due the company, and other assets.

"The above statement of the debt of the Reading Railroad Co. for the year 1883 included the liability of the company on 50,100 shares of the capital stock of the Central Railroad Co. of New Jersey, which was purchased at an average price of \$75.05 per share. The aggregate sum to be paid for the same was \$3,910,776. Prior to Jan. 1, 1884, the sum of \$450,465 had been paid thereon, leaving a balance due of \$3,460,311. The stock was carried for the company by various parties in the cities of Philadelphia and New York. In consequence of the financial embarrassments that ensued after the numerous and extensive failures that occurred in New York city in the early part of the year, the company was called upon to pay the sum due upon the said stock. It was impossible for the company, at that time, to repay the sums advanced upon it. If it should be thrown upon the market, as was threatened, it was certain that an enormous loss would be sustained by the company. To avoid this disastrous result the management secured a temporary loan to the amount of \$3,263,885 upon the securities of said shares and other collaterals. The parties so advancing the money carried the stock until, in consequence of the inability of the company or the Receivers to repay the loan, they caused 49,100 shares of the stock of the New Jersey Central Railroad Co. to be sold, and realized thereon the average price of \$55.95 per share, making the aggregate sum for the shares sold of \$2,747,367.

"The expenditures on capital account for the companies have also resulted in a further increase of the floating debt.

"In like manner the losses sustained in conducting the business of the two companies led to an increase of such indebtedness. The expenditures made and losses so sustained, as well as the principal items which contributed to such increase, may be thus summarized:

"1. Loss in operating the Philadelphia & Reading Railroad, from Dec. 1, 1883, to Nov. 30, 1884, after charging up all fixed charges, \$1,080,656.

"2. Loss in operating the Philadelphia & Reading Coal & Iron Co., from Dec. 1, 1883, to Nov. 30, 1884, after charging up all fixed charges, \$800,362.

"3. Loss in operating the Central Railroad of New Jersey from Dec. 1, 1883, to Nov. 30, 1884, after charging up full rentals, \$1,474,231.

"4. Expenditures charged to capital account of the Philadelphia & Reading Railroad Co., \$590,005.

"5. Expenditures charged to capital account of Philadelphia & Reading Coal & Iron Co., incurred on the following accounts:

"Colliery improvements, equipments, betterments, etc., \$1,049,328.

"Lands, collieries, etc., purchased (under agreements made in 1883, amount required to be paid in the future) \$1,386,923; under agreements made in 1884, \$38,465; a total of \$1,425,388, on account of which bonds and other obligations not yet matured were issued for \$702,234, leaving cash expended for lands and collieries, \$723,154.

"6. Expenditures made under the lease of the Central Railroad in permanent improvements necessarily made to said railroad, and the lines embraced in said lease, and amount applied by the Central Railroad Co. to the payment of various obligations of said company, from Dec. 1, 1883, to Nov. 30, 1884, \$1,177,999.

"7. Expenditures made by the Philadelphia & Reading Railroad Co. on account of the purchase of the Williamstown Railroad, and the reorganization thereof, and the extension of the same from Williamstown to Glassboro; the interest of the Reading Co. accrued under the lease of the Central Railroad of New Jersey, \$62,007.

"8. Expenditures made by the Philadelphia & Reading Railroad Co. on account of the purchase of the Philadelphia & Atlantic City Railway, and the reorganization thereof, and the widening of the gauge of the same; these expenditures resulted from the lease of the Central Railroad of New Jersey to the Reading, \$331,252.

"9. Expenditures on various other leased lines for which

this company claims to be entitled to receive bonds and stocks under the several leases, \$386,002; making a grand total of \$7,655,996.

"The expenditures on account of the Central Railroad Co. arose under the terms of the lease. For such expenditures the Reading Co. is entitled, at its election, to receive stock or bonds of the said company. The said company has been notified of the election of the Reading Co. to receive the bonds of the former company in payment of the same. The Reading Co. was, on Dec. 1, 1884, entitled to bonds on the above account to the amount of \$1,516,411, it having received during the year 1883 bonds for \$600,000 on account of similar character of expenditures made by it during that year.

"To the extent that these obligations are issued to the Reading Co. to replace obligations paid by the said company, there will be no increase thereby in the fixed charges assumed by the company under the terms of the lease.

"Assuming that the lines named are to be placed under the system of the Central Railroad of New Jersey, the Reading Co. is also entitled to be reimbursed for its expenditures on account of the Williamstown Railroad and the Philadelphia & Atlantic City Railroad.

"The losses sustained upon the Reading and Central systems, respectively, were mainly due to the unsettled state of the coal trade during the year. The coal trade is subject to periodical depressions, as will be seen by a glance at the following table showing the number of days during which the Reading collieries were worked during the last seven years, and the quantity of coal mined therefrom.

The Reading Coal & Iron Co.'s collieries were operated in—

	Days of work.	Tons mined by Co.	Tons mined by tenants.	Total.
1878.....	107.3	2,737,608	1,100,181	3,827,789
1879.....	243.5	4,269,929	1,300,321	5,570,251
1880.....	173.8	2,460,464	1,235,042	4,696,106
1881.....	198.3	3,937,607	1,484,962	5,422,600
1882.....	205.6	4,111,830	1,512,959	5,624,789
1883.....	227.5	4,382,667	1,491,464	6,074,131
1884.....	191.5	4,025,987	746,697	5,072,684

"This is shown, too, in the falling off of the coal tonnage in such years of depression. Thus in 1878 the Reading and Central companies together fell 2,724,000 tons behind the tonnage of 1877; in 1880 they fell 1,863,000 tons behind the tonnage of 1879; while in 1884 they fell 1,433,166 tons behind the tonnage of 1883, which was a year of exceeding prosperity to the companies."

## Pittsburgh &amp; Lake Erie.

This company owns a line from Pittsburgh, Pa., to Youngstown, O., 68 miles, with a branch to New Castle, Pa., 2.9 miles, making 70.9 miles in all. The statements below, for the year ending Dec. 31, last, are from the reports presented at the annual meeting last Monday.

The company also leases the Pittsburgh, McKeesport & Youghiogheny, from Pittsburgh, to New Haven, Pa., 57 miles, with the Youghiogheny Northern Branch, 2.6 miles, and the Dickinson Run Branch, 4.5 miles, 64.1 miles in all. The earnings of that road are given separately.

The equipment consists of 30 locomotives, 32 passenger and baggage cars and 1,496 freight cars.

The capital stock of the company is \$2,050,000, and the funded debt consists of \$2,000,000 first mortgage 6 per cent. bonds. There was no change during the year.

## The earnings for the year were as follows:

	1884.	1883.	Inc. or Dec.	P. c.
Freight.....	\$974,653	\$1,152,189	D. \$177,536	15.4
Passengers.....	193,765	223,538	D. 29,773	12.4
Mail, etc.....	25,103	27,037	D. 1,934	7.2
Total.....	\$1,193,521	\$1,402,764	D. \$209,243	14.9
Expenses.....	809,227	819,790	D. 10,563	1.3
Net earnings.....	\$384,294	\$583,004	D. \$198,710	34.1
Gross earn. per mile.....	16,834	19,785	D. 2,951	14.9
Net ".....	5,420	8,223	D. 2,803	34.1
Per cent. of exps.....	67.80	58.40	I. 9.40	

The earnings show a very considerable decrease, owing partly to diminished traffic and partly to lower rates on freight.

The earnings of the leased Pittsburgh, McKeesport & Youghiogheny road were:

Freight.....	\$546,200
Passengers.....	41,776
Other.....	3,525

Total (\$9.28 per mile)..... \$91,501

Expenses (49.7 per cent.)..... 294,466

Net earnings (\$4.635 per mile)..... \$297,065

Rental paid..... 329,231

Loss for the year..... \$32,130

The rental paid is 6 per cent. on the stock and bonds. The lease dates from Jan. 1, 1884, and a part of the loss is borne by the Lake Shore & Michigan Southern Co.

## The result of the year was as follows:

Net earnings, as above.....	\$384,294
Interest on bonds.....	\$120,000
Interest and discount.....	66,153
Loss on P., McK. & Y. lease.....	22,928
	309,081

Balance, surplus for the year..... \$175,213

Expenditures for second track and other new construction during the year were \$54,948; for right of way, \$30,389; for real estate in Pittsburgh, \$35,000; a total of \$120,337, from which is to be deducted \$16,772 for real estate sold, leaving an addition of \$103,565 to cost of property. Payments on equipment account were \$31,244.

The General Manager's report says: "The loss of revenue by the February flood and the cost to repair the damage is equal to 6.3 per cent. of the gross revenue.

"Freight rates decreased 16 per cent. on account of the great depression in the important industries located on our lines. Had the rates of last year been fully maintained, it would have added \$185,720 to the revenues of the company.

"The equipment notes due in 1884, amounting to \$31,588, have been paid. The payments on this account for 1885 will be but \$18,426, and will close all payments on account of equipment.

"The second track has been extended from near Lowells-ville to Robinson's, and an intermediate track, 5.104 ft. laid; 1,849 ft. have been added to second track at Pittsburgh. A total of 3.4 miles of second track and sidings has been laid during the year."

The President's report says: "The rental under the lease of the 6 per cent. on the outstanding stock and bonds of the Pittsburgh, McKeesport & Youghiogheny Railroad amounted for the year to \$329,231, which shows a loss in the operation of the road for the year of \$32,136. Having in view the undeveloped condition of the coal mining and other industries on the line of the road at the beginning of the year and of the general depression in the manufacturing industries of Pittsburgh and vicinity, this result is regarded by your Board as demonstrating the value of the lease and as quite satisfactory."



Published Every Friday.

## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## CHICAGO RECEIPTS OF GRAIN AND LIVE STOCK.

The annual review of the business of Chicago for the year 1884, published in the Chicago newspapers, gives material for an interesting study. Chicago is not only the greatest of interior traffic centres—the greatest in the world, not in this country only—but it is the chief market of just that part of the country which of late years has been growing fastest, and in which railroad construction has been greatest. It is well to observe that it is now only the chief market of that country, and that west, northwest and southwest of it new markets have been developed at Omaha, St. Paul and Kansas City, which interrupt the flow of traffic to it, just as some 35 years ago Chicago itself, and earlier St. Louis, grew up and interrupted the flow of traffic to Cincinnati and other places further east. The new cities, however, do not divert some of the most important traffic, though they may stop it on its way, and the increase of corn-growing in Kansas and Nebraska and of wheat-growing in Dakota, and of stock-growing west of all these, tends to increase to a considerable extent the receipts of corn, hogs, wheat, flour and cattle at Chicago. What progress has actually been made, then?

The receipts of the great staples of Western produce at Chicago for the last 12 years have been:

	Flour and wheat, bu.	Corn, bu.	All grain, bu.	Hogs.	Cattle.
1873.	37,459,754	38,157,232	98,935,413	4,337,750	761,428
1874.	41,764,677	35,799,638	95,611,713	4,258,379	843,966
1875.	36,012,843	28,341,150	81,067,302	3,912,110	920,843
1876.	29,872,444	48,668,640	67,735,482	4,190,006	1,096,745
1877.	26,274,654	47,915,728	94,416,399	4,025,970	1,033,151
1878.	43,351,106	63,651,518	134,086,595	6,399,654	1,083,068
1879.	49,270,920	64,339,321	137,704,571	6,448,330	1,215,732
1880.	38,009,858	97,272,844	165,855,370	7,059,353	1,382,477
1881.	36,493,565	78,393,315	146,807,329	6,474,844	1,547,498
1882.	41,818,200	49,061,755	126,155,483	5,817,504	1,607,495
1883.	39,636,972	74,412,319	164,924,732	5,640,625	1,908,167
1884.	48,936,374	59,605,449	160,069,146	5,351,967	1,817,697

This covers a period from the culmination of a period of rapid railroad building and general prosperity down through a season of great and almost universal depression, which reached its lowest about the middle of 1877, then up slowly, at first and then rapidly, to the time of greatest activity, which was about the first half of 1881, and then downward since.

We see that the Chicago grain receipts were nearly stationary from 1873 to 1877. (They had grown steadily and quite rapidly for some years previous down to 1873.) For the same five years ending with 1877 there was no increase in the receipts of hogs. (They had increased 160 per cent. from 1869 to 1873.) The only great staple of Chicago receipts from the West that had increased was cattle, the receipts of which were one-third more in 1877 than in 1873 (having increased 89 per cent. from 1869 to 1873. At that

time, then, the great increase in the railroad system west of Chicago was not soon followed by an increase in the traffic which those roads convey. Then for three years there was an enormous growth, as if the energies that had been dormant for five years previous had suddenly expended their accumulated force. From 1877 to 1880 there was an increase of 45 per cent. in wheat receipts, 103 per cent. in corn receipts, 75 per cent. in receipts of all grains, of 75 per cent. in hogs, and 34 per cent. in cattle receipts. More than half of the gain in grain and hogs was made in the single year from 1877 to 1878, when the great crops of 1877 combined with high prices to restore prosperity to the West.

Now, in no year since 1880 have the corn receipts, the total grain receipts or the hog receipts been so large as they were then, and for two years there was a great decline in the total of grain (24 per cent.), while the decline in hogs has been continuous since 1880, and last year was 27 per cent. less than then. Only the cattle receipts continued to grow, becoming 33 per cent. more in 1883 than in 1880, but falling off 34 per cent. last year. The great falling off of grain in 1882 was due to the light crops, and especially the light corn crop of 1881, and we see that the grain receipts were very nearly as great in 1883 as in 1880, and not much less in 1884. But the noticeable thing is that these receipts have not grown in these years, in spite of a great immigration and the construction of several thousands of miles of railroads which were expected to get their support from just such traffic as this. Three successive light corn crops have had a good deal to do with this, and almost everything to do with the smaller hog receipts; but, making all allowances for this, the failure of the traffic to grow largely after so great preparations had been made for it is remarkable, and comparable only with the stagnancy of the Chicago traffic after 1873.

The chief extension of wheat cultivation on this coast of late years has been in Dakota, Nebraska and Kansas, three states which had about 3,600,000 acres in 1879 and 5,050,000 in 1884. Yet we find that the Chicago receipts were largest (wheat and flour) in 1879. The production has fallen off in some of the states east of the Missouri as it has increased west of it. Part of the large wheat crop of last year remains to be marketed however, and this with a positively large corn crop is likely to make the grain receipts of 1885, should there be a fair crop of small grain next summer, decidedly larger than ever before, though in proportion to the railroad mileage west of Lake Michigan it must be very much less than for several years prior to 1882. For a considerable increase in the hogs received, we must wait probably till next fall to give time to breed and grow them.

Perhaps some comfort may be drawn from the fact that already the traffic has been stationary, or at least has ceased growing, for four years, and so may be expected to begin to grow rapidly very soon, as there certainly now is a sure foundation for larger receipts in 1885, given by larger crops, and especially by a large corn crop. But on the other hand it must be remembered that in the earlier period railroad construction reached its maximum in 1873, and it was six years later that a positively large growth of traffic began; in the later period the greatest railroad construction was in 1882, and but three years have passed since then.

We can barely hope that the large crops of 1884 will have as great an effect on the traffic of 1885 as the large crops of 1877 had on the traffic of 1878—an increase of 42 per cent. in the grain receipts and 59 per cent. in the hog receipts; then high prices and a good foreign demand made the crop worth very much more than an equal amount is worth now. But the crop of 1884 will add considerably to the traffic of 1885, and may give the needed impulse toward healthy business. In 1878 it was not generally recognized that any great progress was being made, but what happened then was preparing the way to the business activity of succeeding years.

It seems probable that the Chicago cattle receipts will not increase so fast hereafter as they have heretofore for some years, though we may be mistaken in this. The larger part of the ranch country has been pretty well occupied now, and though there may be rapid growth on the Northern Pacific in the number of cattle turned out, elsewhere it seems likely to be moderate. But the decrease last year may have very little significance. The cattle receipts increased about one-third from 1878 to 1876, were stationary then for three years, increased 43 per cent. from 1878 to 1881, and 23 per cent. from 1881 to 1883, or 76 per cent. from 1878 to 1883. We shall probably fail to keep on at this rate unless the prairie farmers east of the ranches turn their attention to cattle-raising somewhat as the landowners of Central Illinois did some 20 years ago

and more. If they do this they may more than make up for any cessation of growth on the plains, but we see no indications of that yet.

## The Fort Wayne Difficulty.

The strike or rebellion upon the Pittsburgh, Fort Wayne & Chicago Railway, at Fort Wayne, is one of those phenomena which accompany important changes in the method of doing anything upon a great railroad, particularly if the change is likely to effect an economy or to dispense with a considerable number of employes. That spirit which regards the employer as bound to continue in the old ways, and to give perpetual employment at the old rates to all old employes, no matter what discoveries may be made which would enable him to dispense with a part of them, affects the employes upon a railroad very deeply, even if they are not members of any union; and it is sympathized with by a large part of the community, who dislike to see men out of work, and by the shop-keepers who wish to retain their custom, as also to have them receive an income which will pay their store bills. Not infrequently subordinate officers also take the part of the men, so far as not to use their influence or energy to promote the reform—apparently more from an inherent dislike of changes than from other cause; although sometimes there goes with this a prejudice against new managers, which is often very unreasoning or unfounded. The improvements which have resulted in cheapening transportation upon the great trunk lines have almost always encountered opposition from some classes of employes.

The reform which was begun, or attempted, on the Fort Wayne road was probably compelled by the law of self-preservation; for the statistics available show that that road has been far behind its contemporaries in the matter of hauling freight, its average train-load being among the smallest of which we have any information, upon a trunk line. In 1881 its average train-load was only 132 tons, while that of its immediate rival, the Lake Shore & Michigan Southern, was 271 tons, and of the Philadelphia & Erie 275 tons. Since then Mr. Baldwin, formerly of the Philadelphia & Erie, has been transferred to the Pittsburgh, Ft. Wayne & Chicago; it could not be expected that he would remain contented with such a low performance. Unfortunately, the Fort Wayne road had an inheritance of light locomotives from a previous generation, and has not had at any time, unless very recently, any engines to compare in power with those of the Pennsylvania Railroad or of the Erie. The only way in which a fair train-load could be hauled was to double the engines upon each freight train; and although this is not the best possible application of power, it is the best available when your engines are light. This course, it seems, enabled the company to dispense with about fifty men, as well as to increase the train-load; and it was against this proceeding that the men have revolted.

But it is not only a saving of wages which the company secures by this increase in the size of train-loads; the number of trains being reduced by about one-half, the number of intervals to be maintained between them, in order to secure safety, is correspondingly diminished; and on the single track, there will evidently be only one-quarter of the number of dispatches required in making meeting points. Upon a heavily worked line like the Fort Wayne, these are considerations of great importance, and it does not require a spirit of prophecy to foretell the final result of this struggle. The men may by their obstinacy put back the hands of the clock, for a few days, although that is scarcely probable; but all the laws of economy, and the dictates of common sense, are on the side of the railroad company.

## The New York Railroad Commissioners' Report.

The report of the New York Railroad Commission recommends the abandonment of the principle of a general railroad law, permitting the construction of railroads without other limit than the will and ability of the projectors, which but 12 or 15 years ago was almost universally recommended and adopted as of great advantage to the public. At that time, judging from the expressions of opinion, no one questioned the desirability of the freest possible construction of railroads—the more the better for the public, while investors could take care of themselves, nor did it matter if they should suffer. We have long tried to impress the great truth, that one horse eats less than two, but until very recently it seems to have been beyond the general comprehension. The Commission proposes that a charter be granted only after it, or a general term of the Supreme Court, shall have certified

the necessity of the proposed road. The authority is an extremely important one, and the granting of it should be very carefully guarded; those proposing to build should set forth precisely and publicly what they purpose to do for the public, and what they expect to effect by it; and all opponents to the project should also offer their objections publicly, and the tribunal should be required to set forth fully the reasons for its decision. It is not long since charters were granted at the discretion of state legislatures, as they still are in some states, and there were many scandals connected with the practice, though in all but the older states charters were seldom refused. It has taken centuries to develop the independence, sense of responsibility and caution of our courts, which makes them generally trusted; and no new tribunal will soon command the same respect, or deserve it, unless its methods are very carefully guarded.

The New York Commission has had an object lesson of the first magnitude to prove what a tremendous destruction of the value of railroad investments may be caused by free railroad construction, but it has not yet lived long enough to see the effect which the unnecessary multiplication of railroads has on the cost—and eventually on the price—of transportation.

The Commissioners' report shows that the traffic of the New York railroads was substantially the same in amount in the fiscal year ending Sept. 30 last as in the previous year—a minute fraction more; but there was a decrease of \$7,776,462 (5.8 per cent.) in the gross earnings from that traffic, while the working expenses were very nearly the same (\$4,069 more), so that the reduction in net earnings was no less than 16½ per cent.

The interest charges increased so much that the surplus of net earnings over fixed charges—the stockholders' profits—were (as nearly as we can ascertain from the figures now published) \$12,479,587, against \$23,936,782 the year before—a decrease of no less than 47½ per cent! It must be remembered that the roads covered by the report include not only the New York Central and the Erie, whose net earnings fell off \$4,190,000 last year, but also the Lake Shore and the New York, Pennsylvania & Ohio, mostly outside of the state, which also suffered greatly. This is a startling instance of the fluctuations of railroad profits, and it may well have made a strong impression on the Commissioners. The average earnings per share of stock fell from \$3.43 in 1883 to about \$1.95 in 1884.

The Commission recommends legislation which will give a substantial minority of the stockholders of a railroad company the right to call a stockholders' meeting, and to ascertain the company's financial condition from its books; also to require the consent of stockholders to any new issue of bonds.

The most valuable work of the New York Commission has been the requiring of quarterly reports and its investigations of railroad accidents. The reports were needed the more because most New York companies made no monthly reports of gross earnings even, and the proprietors of railroads were kept in the dark as to the financial condition of their own property from one year's end to another. Investigations of accidents are valuable even if very imperfect, and some of those by the New York Commission have been very good. The investigations of rates, etc., during the past year have not had in them so much to object to as we found in the early ones, and such investigations are often useful, without regard to the recommendations of the Commissioners. The Commissioners, however, show very great temerity in recommending legislation to prescribe certain methods of construction and definite safety appliances, which can scarcely ever be done safely, and is likely often to result in increasing danger instead of safety.

#### December Earnings.

December earnings have now been reported by 42 railroads, of which 20 show an increase in total earnings, and the amounts of increase and decrease nearly balance each other, the totals for the 42 roads being:

	1884.	1883.	Decrease, P. c.
Earnings.....	\$17,405,513	\$17,463,826	\$58,313 0.3

This is a much better comparison than we have had for some months. The increase in mileage is also less now than it was early in 1884, and the decrease in the earnings per mile of these roads could not have been very great. The comparison is with a month when the earnings were generally considerably less than in 1882; but as we showed last week, the comparison with 1882 was more favorable for several important roads than it had been for some time previous.

The more important gains were reported last week. This week we have a gain of 8.6 per cent. on the Cincinnati, Washington & Baltimore, notable because for

months previous it had shown a loss, which was 6.6 per cent. in November, and 9 per cent. for the first 11 months of the year. Its earnings were considerably larger in amount in December than in November, contrary to the usual course of things. The Louisville & Nashville also shows a small gain in December (1.2 per cent.) after a large decrease in every fall month, which in November was nearly 10 per cent. And this is the more encouraging because in 1883 its December earnings were larger than ever before. For five years they have been:

	1880.	1881.	1882.	1883.	1884.
	\$949,185	\$1,153,779	\$1,221,509	\$1,722,924	\$1,287,930

Thus the increase over 1882 is 5.4 per cent., and over 1881, 11½ per cent. The New Orleans Exhibition probably helped it considerably in December. Its earnings were larger then than in any other month of the year except October. This is not so remarkable in a Southern as in a Northern railroad.

The Memphis & Charleston reports a gain of 21 per cent. in December, but it has shown large gains in previous months. The gain shown by the Norfolk & Western is only \$271, and would be insignificant but that it lost \$41,000 (15 per cent.) in November, and has had a decrease in every other month since April. The St. Paul & Duluth had the very large gain of 29½ per cent., and much the largest earnings it ever had in December.

The losses reported this week are much more numerous than the gains. The Central Pacific shows a decrease of 12 per cent., but this is the smallest it has had for four months, the decreases since July having been:

	August.	September.	October.	November.	December.
	\$154,204	\$231,355	\$410,453	\$307,639	\$223,462

Three lumber roads in Michigan show large decreases—the Flint & Pere Marquette, 14 per cent.; the Chicago & West Michigan, 23½, and the Detroit, Lansing & Northern, 26 per cent. The first of these had much larger decreases in November and October. The Chesapeake & Ohio's decrease of 5 per cent. is much less than in any other month since July—\$15,002, against \$56,981 in November. Its earnings last December were much larger than in any other except in 1883. The Denver & Rio Grande's large loss of 16 per cent. is the smallest it has had since May. Its decrease from 1882 is less than 10 per cent., but from 1881 it is nearly 40 per cent.

The Grand Trunk had a decrease of 9.7 per cent. in December, which is not half so great as its November decrease. In successive months its decreases have been:

	Aug.	Sept.	Oct.	Nov.	Dec.
	\$106,071	\$182,411	\$186,455	\$298,809	\$139,765

Its December earnings in 1883, however, were 9.8 per cent. less than in 1882, and the decrease from the latter year is large. The Indiana, Bloomington & Western has a smaller decrease than in any other month since February; the Mobile & Ohio, a very small one, after very large ones for some months. The Alton & Terre Haute Main Line has the very large decrease of 34 per cent., and a larger loss than in any previous month; its Belleville Line fared about the same as in November.

The roads that have reported so far have a little more than half the earnings and much more than half the mileage of the whole number that report. They make a favorable showing, compared with previous months; but it is doubtful if the reports still to come in will maintain so favorable an average. Among them are those of some great roads, as the Pennsylvania and the Reading, which can hardly be expected to make a very good showing for December.

If it were probable that the Reagan bill, which passed the lower house of Congress last week, were likely to get a majority in the Senate and become a law, it would be a most serious matter, for its enforcement would be little less than a national calamity. Besides the provisions heretofore identified with the bill, such as the prohibition of higher rates for a short haul than for a long one which includes the short ones, and the prohibition of pooling, there is one limiting passenger rates from one state to another to three cents per mile. There are several railroads in the United States on which a rate of three cents a mile for passengers will not pay train expenses, and there is not one considerable European country where the first-class rate is not higher, and in most of our states of largest population it is the common rate of many railroads, and is there considered to be a reasonable rate. There may be at any time, anywhere, even in the states of densest population, places where a railroad would be a great public convenience, at a rate much more than three cents a mile, where that sum could not possibly pay. It may be true that the inter-state travel, to which alone the Reagan bill would apply, is not very large which is not now carried

at three cents a mile or less; but it is important to some roads, and to prevent their collecting a fare which will yield them a reasonable profit is just as honest and honorable as highway robbery, and no more so.

The other features of the bill are really much more important. The objections to them have been urged so often, by the men best fitted to judge of the effect, that it seems useless to discuss the matter further. It is safe to say that *not one man*, qualified by experience to judge, approves the bill. It is difficult to believe that all those who voted for it really desire it to become a law. Knowing that it would have to run the gauntlet of the Senate, and that the session will be short, and that an adverse vote might be used against them in some quarters, some probably voted for it who really in their hearts condemn it.

We noticed last week that in December last the West Shore brought to New York a much larger quantity of grain than ever before, and a large proportion of the entire receipts. We have now the report for December, which is important because then the road could no longer obtain grain from lake vessels, but must obtain it either from connecting railroads or from the Buffalo elevators.

Actually the West Shore brought more grain to New York in December than in November even, and a decidedly larger proportion of the whole New York receipts, one-half more than the Pennsylvania Railroad and but one-sixth less than the Erie, which so far seems to be the chief sufferer from the diversion made by the new roads. The receipts of flour and grain by each railroad, in bushels, and the percentage of the total carried by each last December were:

	N. Y. Cen.	Erie.	Penna.	Lacka.	W. Shore.
	3,310,081	1,558,245	785,815	837,319	1,216,038
	42.4 p. c.	20.0 p. c.	10.1 p. c.	10.7 p. c.	15.6 p. c.

The total rail receipts were 7,806,079 bushels, 38,581 coming by unspecified railroads. In November the West Shore brought about 1,125,000 bushels out of 7,939,382, or 14.2 per cent. of the whole. In these two months it carried about as much as in the first six months of the year.

It appears that the West Shore is getting most of its grain from the Grand Trunk, a good deal of it coming from Milwaukee, where there is no pool; and it is generally believed that what it carries has been taken at cut rates, a considerable part even of the December business at as little as 15 cents per 100 lbs., on contracts made earlier.

We have said that the Erie seems to be the chief sufferer from the diversion to the new roads. Witness the percentage of the total rail receipts at New York brought by each railroad in December for the last three years:

	N. Y. Cen.	Erie.	Penna.	Lack.	W. Shore.	Other.
1884.....	42.4	20.0	10.1	10.7	15.6	1.2
1883.....	40.5	34.2	16.4	5.8	1.1	3.1
1882.....	48.5	30.7	19.8	...	...	1.0

Of the 26.3 per cent. diverted by the two new roads since 1882, 6.1 came from the New York Central, 10.7 from the Erie, and 9.7 from the Pennsylvania.

Taking the *entire year*, the percentages of the rail receipts brought to New York by each railroad have been:

	N. Y. Cen.	Erie.	Penna.	Lack.	Other.
1884.....	41.2	20.6	14.6	7.6	10.0
1883.....	40.5	39.2	16.4	5.8	1.1
1882.....	48.7	30.6	19.9	...	0.8
1881.....	44.2	35.6	19.3	...	0.9
1880.....	47.6	39.6	12.6	...	0.2
1879.....	52.8	34.0	13.0	...	0.2

Of the "other" shipments last year, doubtless nine-tenths came by the West Shore, and the two new roads carried 16.6 per cent. of the whole, against 5.8 in 1883, yet the New York Central had a larger share of the business in 1884 than in 1883. The Pennsylvania lost but 1.8 per cent., while the Erie lost 9.6 per cent., or more than a fourth of its percentage. Compared with 1882, which was the year least favorable to the Erie, the New York Central has lost most and the Erie least, but comparing with all years except 1882 and 1879, the Erie has lost more than the Central.

There seems to be danger that the pool on east-bound freight from the West to the seaboard will be dissolved, for a time at least. The troubles and differences are now such that a settlement has become unusually difficult until there has been a test by open competition of the effect of the conditions introduced by the new trunk lines. The immediate question at issue, it is true, is not between the Eastern trunk lines, but between their Western connections; but the question arises because of the new outlet to New York city given the Grand Trunk by the West Shore. The Grand Trunk cannot give the latter any considerable amount of New York business without increasing the amount of freight destined to New York which it carries from the West. The large business recently carried eastward by the West Shore has been brought to it chiefly or largely by the Grand

Trunk. There is reason to believe that it has been carried at cut rates, and the other roads demand that the Grand Trunk not only should not participate in the cut, but should not carry for the West Shore (or any other road) if it cuts the rates east of Buffalo, and that it shall not carry from Chicago a larger proportion of the freight than has been awarded it. In this latter demand they hold that the essence of their co-operative agreement is at stake. The Chicago & Grand Trunk claims have been submitted not only to the usual arbitration provided for in the contract of the roads, but to an appeal after what regularly would have been a final decision. If it does not abide by this decision, they claim that it will be useless to make any agreement.

A meeting is to be held in New York, Friday, to consider these matters. The result is regarded with great anxiety. A dissolution of the pool on east-bound business would be almost sure to cause serious losses to many railroads. Although east-bound rates have not been well maintained this winter, reductions have apparently been the exception at most shipping points, including the most important ones, and the average reduction has probably not been large, so that there has been a profit on the business. Should the pool be dissolved, the rates made would probably leave no profit whatever until it was restored. Its restoration would be almost inevitable, but probably months would elapse first, and the sole return for the millions wasted would be a very imperfect knowledge of the natural effect of the West Shore connection on shipments over the Grand Trunk under open competition.

The dullness of business was reflected in the shipments of freight from New York more in December last than at any time previous, these shipments being then nearly a third less than in 1883, nearly the same as in 1882, 35 per cent. less than in 1881 (when very low rates made them very large), slightly more than in 1880, and 10 per cent. less than in 1879. Ordinarily, when there is no change in rates, the shipments are smaller in December than in any other month of the year. That was the case in the year just past, and the decrease from November not greater than in several other years, and not so great as in some.

#### The Late John B. Jervis.

The venerable John B. Jervis, the Nestor of American engineers, has at last passed away, at the great age of 89, which he reached with fewer of the infirmities than usually attend so great an age. Mr. Jervis was already a prominent engineer when the first American railroad was built, and it was by his recommendation as Chief Engineer of the Delaware & Hudson Canal Company that his young assistant, the now venerable Horatio Allen, was sent to England before the construction and trial of the "Rocket," to order locomotives for the railroad which this company was building through the woods of the Northeastern Pennsylvania, to carry coal from the mines to its canal, the story of which was recently told in these columns by Mr. Allen. As one of the few men of reputation in the engineering profession in this country at the time we began to build railroads, Mr. Jervis had an important part to play, and he remained a leading railroad man until, already many years ago, advancing age led him to retire from such active duties.

Mr. Jervis began at the very bottom of his profession, in 1825, as axeman on the Erie Canal during its construction. Later he became Chief Engineer of the Delaware & Hudson Canal, and its canal and railroad were built under his direction.

In 1831 he was Chief Engineer of the Mohawk & Hudson Railroad, the line from Albany to Schenectady which now forms part of the New York Central & Hudson River Railroad, and the next year he designed for it a locomotive with a swiveling truck, which has since become almost universal on American railroads, and the use of which is now rapidly spreading in Europe. In 1836 he became Chief Engineer of the Croton Aqueduct, which is generally regarded as his great monument, and one of the finest engineering structures in the country. There were no precedents in this country for a structure of this kind, but the results attained were precisely what Mr. Jervis had estimated, and the cost differed from his estimates by only 1 per cent.

In 1849 Mr. Jervis became Chief Engineer of the Hudson River Railroad, and not only took charge of its construction, but argued in favor of its financial success, at a time when few thought it possible for a railroad to secure a paying traffic alongside a stream so favorable to navigation as the Hudson.

The Hudson River Railroad having been completed in 1851, Mr. Jervis became connected with Michigan Southern & Northern Indiana, the Chicago & Rock Island (of which he was President in 1854), and the Pittsburgh, Fort Wayne & Chicago, but it is already many years since he retired from active railroad management. Having built the first railroad in America on which a locomotive ran, he lived to see the country covered with a net-work of 125,000 miles, which in methods of construction and in the character of the rolling stock used bears the impress of his ideas and those of the other pioneers in railroad building.

#### Buffalo Lake Traffic.

The report of lake and canal traffic at Buffalo during the past season is not by any means unfavorable, so far as amounts are concerned, taking all kinds of freight. The arrivals and clearances of lake vessels at the port were somewhat less in number but nearly the same in tonnage as in 1883. The aggregate tonnage of vessels arriving and clearing, however, does not show any signs of growing, and is much less than for nine years before 1868. The average yearly tonnage for successive periods has been:

7 years.	9 years.	6 years.	4 years.	7 years.
1852 to 1858.	1859 to 1867.	1868 to 1873.	1874 to 1877.	1878 to 1884.
3,323,080	6,011,845	4,495,941	3,300,550	4,682,082

These different periods are all well marked, the change from one to another not being gradual but sudden; thus in the last year of the first period, 1858, the tonnage was 3,320,426, and in 1859 it rose at once to 5,002,626; then there was a fall of from 5,806,960 in 1867 to 4,251,339 in 1868; another fall from 4,886,773 in 1873 to 3,641,049 in 1874; and the last rise was from 3,543,363 in 1877 to 4,663,688 in 1878. In the last 33 years the largest season's tonnage was 6,951,959, in 1866, and the smallest 2,757,986, in 1876.

For the last eight years the tonnage has been:

Year.	Tons.	Year.	Tons.
1877	3,543,363	1881	4,535,223
1878	4,663,688	1882	4,405,003
1879	4,442,797	1883	4,405,543
1880	5,935,746	1884	4,386,575

Thus since the recovery in 1878 there has been very little fluctuation except the extraordinary movement in 1880, which was the largest since 1866.

The decrease in the lake tonnage after 1867 was due to the competition of the railroads, as the total movement was greater after that than it had ever been before. The increase in the lake tonnage after 1877 was due to an increase in freight to be moved, and the failure to increase since 1880 has not been due to railroad competition, because the railroad movement meanwhile has not increased, but has considerably decreased, the lake movement having been better maintained than the rail movement.

One noticeable feature of the lake commerce is the increase in the average tonnage of vessels. Down to 1862 this was about 400 tons; for the next ten years, ending with 1872, it was about 425 tons. In 1873 it was 491 and in 1874 487 tons, and always since it has been more than 500 tons, averaging 525 tons for the seven years from 1873 to 1879, and for the last eight years has been:

1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.
517	534	528	576	672	601	574	582

The average of the last five years has been 601 tons, an increase of one-seventh over the average from 1873 to 1879, of 40 per cent. over the average from 1863 to 1872, and of 50 per cent. over the period from 1853 to 1862—an increase similar to but not so large as that in the average train load on lines of heavy traffic since 1873.

The average tonnage of the vessel depends much on the nature of the traffic. The great cargoes are those of propellers and other vessels in the grain trade, carrying merchandise and coal up the lakes; when the shipments of grain are very large, these vessels make a larger proportion of the total than when they are small, as then there may be the usual arrivals from lumber ports, which mostly receive only vessels of light draft and tonnage.

The lake grain receipts at Buffalo were not of rapid growth until after 1859. They grew less rapidly, for instance, than those of Duluth. Beginning with 1,239,351 bushels in 1836, they first reached 5,000,000 in 1841, and in successive periods were the following average yearly amounts:

1841 to 1845, five years.	6,083,000 bushels.
1846 to 1850, five years.	14,800,000 "
1851 to 1859, nine years.	20,600,000 "

Then there was a sudden and great growth, as follows:

1859.	1860.	1861.	1862.	1863.
21,530,622	37,053,115	61,460,601	72,872,454	64,735,510

Thus after a period of ten years, during which the arrivals had been substantially stationary, they increased 239 per cent. in three years, and in 1862 were larger than for 15 years afterwards, for they averaged,

1864 to 1870, seven years.	50,300,000 bush.
1871 to 1877, seven years.	62,100,000 "

The growth after 1877 was something like that after 1859, not at so rapid a rate, but a greater amount, the yearly receipts having been:

Year.	Bushels.	Year.	Bushels.
1877	65,145,407	1881	58,088,071
1878	84,540,863	1882	57,296,316
1879	78,547,578	1883	73,126,928
1880	110,465,866	1884	64,866,538

The increase in three years after 1877 was 45,320,000 bushels, or 70 per cent., but in the first year afterward there was a decrease of more than this amount, and last year the receipts were not quite so great as in 1877, and but little more than the average of the seven years from 1871 to 1877.

The railroad war of 1881 did not enable the railroads to carry more to Buffalo than in previous years, but it substantially caused the whole of the decrease to fall on the lake vessels, the falling-off in total receipts being 53,400,000 bushels, and in lake receipts 52,400,000. Since 1881 the light corn crops have materially reduced the lake receipts, as the receipts of this grain in successive years shows:

1880.	1881.	1882.	1883.	1884.
62,916,584	33,004,144	20,738,355	33,915,289	16,031,163

This shows that the whole of the great decrease this year from the receipts of 1880 is due to a lighter corn movement, and, as there is a very large crop to be marketed in 1885, we may expect a very large increase in the lake grain movement to Buffalo this year.

This lake movement to Buffalo has great interest for the

railroads, as four of the trunk lines have their western termini at Buffalo, and two must probably depend chiefly on the lake vessels to bring them grain from the West.

The one branch of the grain movement which has grown largely and steadily since 1880 is flour. This is a traffic which the railroads succeeded in diverting from the lake vessels much sooner than grain. The largest Buffalo receipts of flour by lake were 2,978,089 barrels, in 1863, and for four years, ending with 1864, they exceeded 2,000,000 barrels, averaging 2,503,000. Now when the grain movement became heaviest, in 1880, the Buffalo lake receipts of flour were but 1,056,346 barrels. Latterly, however, they have increased so as to indicate that the vessels have taken more than the railroads of the increase in this freight, having been for five years:

1880.	1881.	1882.	1883.	1884.
1,056,346	761,744	1,395,315	1,772,309	1,823,143

Thus the lake flour receipts last year were 72 per cent. more than in 1880, though the wheat receipts were 15 per cent. less. We have not the rail receipts for 1884 so early, but they decreased from 1,186,665 barrels in 1880 to 494,425 in 1882 (58 per cent.), while the lake receipts increased 32 per cent. This is not so remarkable as it may seem, for the increase in flour production has been chiefly at Minneapolis and other places near lake ports. The flour all goes by propellers, and is substantially all carried from Buffalo by the railroads, the total canal shipments last season having been but 4,812 barrels—not  $\frac{1}{4}$  per cent. of the lake receipts.

In explanation of the great flour receipts by lake last season, during considerable part of which the railroads carried at excessively low rates, it should also be said that the trunk lines solicit business for their lake-and-rail lines, and however low the all-rail rate may be, the lake-and-rail rate is lower. Moreover, considerable shipments are sometimes made from Lake Superior ports, which are much nearer than Lake Michigan ports to Minneapolis, and the saving between the rate from Minneapolis to Chicago and that to Duluth or Washburn may be more important than that between the rail and the lake carriers to Buffalo.

The chief freight shipped by lake from Buffalo is coal, though the propellers carry considerable merchandise in competition with the railroads, at an agreed difference in rates. These coal shipments (chiefly anthracite) have increased enormously of late years, though it is only of late years that the railroads have begun to compete for the business. It remains, however, an insignificant part of the whole coal business, being last year about  $\frac{1}{4}$  per cent. of the whole anthracite production, and a very, very small part of the fuel consumed by most of the Western towns which take these Buffalo shipments. From 1874 to 1880 the latter varied between 326,000 and 546,000 tons, averaging 445,722 tons for the seven years. For the last five years they have been:

1880.	1881.	1882.	1883.	1884.
546,050	841,312	964,336	1,177,074	1,359,980

The increase in 1884 over 1883 is 15 $\frac{1}{2}$  per cent., and over 1880 it is 149 per cent. The weight of the coal shipments last year was not so very much less than that of the grain, which was about 1,600,000 long tons. For some reason the vessels have been able to get better rates for carrying coal of late years than they used to, notwithstanding the competition of the railroads. Formerly 25 and 30 cents a ton to Chicago were common rates; now the average seems to be more nearly 70, and the coal apparently gives a vessel on its up trips about as much as the grain on the down trip. The increase in the consumption of anthracite in the West may thus have had a very important influence in preventing a decrease in the lake marine. If no more could have been made on the up trips than in 1880 and before, the vessels could not have been supported by the down cargoes of grain at current rates. Thus the future course of this business becomes important both to the vessels and the railroads. Anthracite is the fuel of luxury in most places west of Lakes Erie and Huron. In many lake towns and places near lake ports, however, it is the common domestic fuel; where freight makes it more costly, bituminous coal is often used in the kitchen and anthracite in the parlor. Still further from the lakes, only well-to-do people use it at all. Everywhere in the West its consumption is confined chiefly to the towns, and the increase in its consumption there depends chiefly therefore on the growth and prosperity of the towns and cities, especially of the large towns at lake ports. A very small increase in the average fuel consumption per individual in these places will make a very large increase in the amount of anthracite consumed when the people are generally prosperous.

Other freight counted important in the Buffalo lake shipments is cement and salt. They are, however, insignificant compared with coal, cement being 200,000 barrels or less, and salt last year 64,510 barrels and 7,246 tons, or about 16,280 tons in all. They were smaller than in any other recent year, and the railroads seem to be getting nearly the whole of the business, which they are in position to do, because the salt is made on their lines. In 1874 the shipments were nearly 71,000 tons, and they have decreased almost constantly since, and especially since 1879, when they were nearly 60,000 tons.

Lake rates on grain were lower in 1884 than in 1883 or 1881, and perhaps even lower than in 1882, though lower rates were reached then than last year, which, however, was remarkable for the lowness of the rates early and late in the season. It has been common for rates to go very low in June and July, but they opened and closed very low last year. There was not, however, as much complaint among vessel owners as in some other years, and the results apparently were sufficient to keep up the stock of vessels. The railroads will probably have to count on competing with a lake marine which can live on such rates as were got last

year, which means that the railroads must accept low rates on grain and flour hereafter. For the future the circumstances are, in many respects, favorable for lake traffic. The growth of population and production has been very largely in the country to which the lakes afford a direct highway. Minnesota and Dakota especially are able to add materially to the lake traffic, and the large wheat receipts at Duluth since harvest indicate that they are beginning to do it. Manitoba also is likely to give most of its shipments to lake vessels, but it has had two unfavorable seasons, and the prospect of a large business thence is not so bright as it was. Moreover, the great increase in corn production is especially favorable to the lakes. The increase is partly southwest of Chicago, it is true, and it might be supposed that Kansas, Missouri and the southern half of Illinois would go east directly rather than by way of the lakes, but experience has proved that the corn goes chiefly by way of Chicago unless it is produced east of Illinois, and this year the proportion produced west of the Mississippi is larger than ever before. The shipments of corn may not be as great in 1885 as in 1880, but they are likely to be greater than in any of the last four years, and very largely by lake. The coal shipments, however, may not increase, and probably will not increase in proportion to the grain shipments, because the people are poorer and the towns are not growing so fast as they were. This means smaller average cargoes up the lakes, and this will make it hard for the vessels to accept such rates on grain as were paid them the last year. This, and the fact that the supply of vessels is likely to be smaller in proportion to the demand than in recent years, makes it probable that lake rates will be better maintained next season than they were last season. Any rates the vessels will be able to get, however, will be but a very small part of the cost of transportation from places west of the Missouri, or even from most of Iowa, to the seaboard.

#### The Union Pacific's New Code of Rules.

Mr. S. T. Smith, General Superintendent of the Union Pacific, has recently issued a circular to the company's employees, from which we extract the following:

"The attention of all employees is called to the accompanying copy of general regulations and rules, which have been adopted to secure safety and uniformity in the operation of all divisions of the Union Pacific Railway system, and are furnished in advance for the information of employees, and in order that they may be carefully studied and thoroughly understood before the issue of next time-card, with which they will go into effect.

"The especial attention of all employees in any way connected with the movement of trains is called to important changes made. \* \* \* A strict and absolute observance of these regulations and rules from THE INSTANT THEY TAKE EFFECT is essential to the safe operation of the road. It is, therefore, of the utmost importance that they should be thoroughly familiarized and clearly understood. In case of the slightest doubt as to the meaning of any rule, or portion thereof, however unimportant apparently, application must be made to proper authority for explanation, which will be cheerfully given.

"Conductors and engineers will be required to pass a thorough examination on these rules, and unless such examination is satisfactory, they will not be permitted to run a train or engine.

"Employees will confer with and question each other concerning these rules in order to obtain a better understanding of the same, and to more thoroughly impress them upon their memories. \* \* \*

The code of rules is quite elaborate, and altogether there are, very likely, among so many, several in regard to which there would be a difference of opinion as to value. Our first criticism would be that there is "too much of a good thing." Allowing that each one of the two hundred rules is the best possible statement of the precept it refers to, we have grave doubts about the expediency of trying to get the mass of employees to learn anything well where they have to grapple with such a bewildering multitude of subjects in a single dose. One of the opening paragraphs requires that all employees make themselves familiar with all the rules, and we cannot help regarding this as the indication of a wrong principle in the making up of the whole code. Whatever principle is followed, however, in the compilation of a code, it is, in our opinion, highly important that every part be from the same pen. A glaring defect often seen is the great diversity of style in the different departments, and the re-writing of the whole by one competent hand, as appears to have been done in this case, is certainly a valuable feature, and serves to eliminate many inconsistencies.

It was not, however, the subject-matter of the rules nor their arrangement that arrested our attention particularly, but the fact that the men are to be examined upon them. This idea, if carried out, as seems to be intended, will be virtually a new departure, for but few roads pretend even to have examinations, and most if not all of those that are held are far from "thorough." The Union Pacific in instituting thorough examinations can, we venture to say, place its force in many particulars very much in advance of the average of even the best of the roads, take the country through, provided it enforces compliance with the high standard which a thorough and skillful examination shall show to be necessary. Just here is the point where failure generally begins. Examinations show where improvement is needed, but they also show that a higher quality of service requires an increase of money and of careful oversight by the supervisory officers; and so, for this or some other unconsidered reason, the plan dies of paralysis. Mr. Smith's circular, however, has a very business-like tone, and a single sentence in the opening rules ("all employees must be prepared to stand an examination on the rules at any time") will certainly have an immediate and positive influence for good if it is only followed up so that it

shall not be looked upon as a dead letter. We shall look with interest for further developments.

We append a few specially noteworthy rules from the code. (The italics below are ours. Barrels of flour presented to freight agents would seem to be covered as effectually as cigars given to conductors.)

"Employees are forbidden to offer testimonials to their superiors, either directly or indirectly. Employees in authority over others will not accept such presents or testimonials. The acceptance of gratuities or rewards from passengers or other patrons of the road is forbidden. The practice of making or accepting presents is neither reputable nor conducive to good discipline."

"Torpedoes must not be placed near stations or crossings where persons are liable to be injured by them."

"In no case must a train be backed over a public crossing or highway unless there is a man on rear car to see that crossing is clear; nor must a car be cut loose and allowed to run over a public crossing or highway unless there is a man on the same. At night the man on train or car, as referred to above, must have a light."

"When cars leave the track they must not be turned over, thrown down embankments, broken up or otherwise damaged, merely to get them out of the way. Every effort must be made to put them on the track with as little injury as possible," etc.

These are regulations which may well be commended to the attention of other railroad companies.

#### Erie Earnings and Expenses in November.

The report of the New York, Lake Erie & Western for November last shows a continuance and even some aggravation of the unfavorable conditions prevailing in previous months, though the net earnings were larger than in any month of 1884 previous to August. For the years since the reorganization, the earnings and expenses of the Erie proper in November have been:

Year.	Gross earnings.	Expenses.	Net earnings.
1877.....	\$1,570,943	\$982,589	\$608,354
1878.....	1,381,391	863,310	518,081
1879.....	1,515,834	957,637	558,197
1880.....	1,797,337	1,051,733	745,604
1881.....	1,715,469	1,075,887	639,582
1882.....	1,818,824	1,061,618	757,206
1883.....	1,776,172	1,057,615	718,557
1884.....	1,371,519	919,231	452,288

Both gross and net earnings, thus, were less last November than in the corresponding month of any previous year. Compared with 1883 the decreases were:

	Gross earnings.	Expenses.	Net earnings.
Amount.....	\$104,654	\$138,334	\$266,320
Per cent.....	22.8	13.1	37.0

The decrease in net earnings was larger than in any other month of the year except March and August. There was a profit last November of \$35,587 on the lease of the New York, Pennsylvania & Ohio Railroad, against a loss of \$15,479 in 1883. This was due to a very large reduction of expenses, for the gross earnings of this line decreased largely (18 per cent. against 22% on the Erie proper). The gross earnings of this road, however, were larger last November than in any November previous to 1882, while the Erie, we see, had its smallest earnings last November. The net earnings were also probably larger last November than in any other except in 1882, though the different method of charging expenses in use since the lease makes it impossible to make an exact comparison. Compared with last year the changes are:

	Gross earnings.	Expenses.	Net earnings.
Amount.....	Dec. \$107,337	Dec. \$124,056	Inc. \$16,719
Per cent.....	18.0	29.5	9.5

The November expenses were exceptionally large in 1883—a ninth more than the average of the three months previous. This year they were about the same as the average of the three months previous.

Taking the profit or loss of this system into consideration, the Erie's net income from the two systems was \$487,825 last November, against \$708,078 in 1883, a decrease of 30.6 per cent.

For the two months of the fiscal year ending with November the net earnings of the Erie proper, and the same plus the profit or minus the loss on the lease of the Ohio road, have been:

	1884.	1883.	Decrease.	P. C.
Erie.....	\$1,030,809	\$1,505,681	\$474,872	31.5
Erie and N. Y., Pa. & O. ....	1,115,667	1,546,446	430,779	27.8

The profit on the Ohio road in 1884 has been equal to 8 per cent. of net earnings of the Erie proper—an addition not to be despised.

The great decrease in the Erie's net earnings began in December, 1883, when they were not one-third as great as in November. It is therefore quite likely that the company will show an increase hereafter, and it may do so and still have very light earnings.

The production of pig iron in the United States in 1884 is estimated by Mr. James M. Swank, the Secretary of the American Iron and Steel Association, to have been 3,835,191 tons of 2,240 lbs., which is 16½ per cent. less than in 1883, 17 per cent. less than in 1882, 7½ per cent. less than in 1881, the same as in 1880, but 40 per cent. more than in 1879, and still more than in any previous year. If we had made the progress from 1879 to 1884 uniformly, the increase would have been at the rate of 7 per cent. yearly, and we should have thought that very rapid. In ten years from this time it would make the production 7,670,000 tons. But as we made the increase of 40 per cent. in a single year, and made a further large increase in the next two years, the great progress made is lost sight of in view of the recent decline.

The production for the last 12 years has been as follows:

Year.	Tons.	Year.	Tons.
1873.....	2,560,962	1879.....	2,741,853
1874.....	2,401,362	1880.....	3,835,191
1875.....	2,023,733	1881.....	4,144,254
1876.....	1,808,961	1882.....	4,623,323
1877.....	2,066,594	1883.....	4,594,511
1878.....	2,301,215	1884.....	3,835,191

In the period of decline after 1873 there was a decrease in

1875 of 15½ per cent. from 1874, and of 21 per cent. from 1873; while in 1884 the decreases are 16½ and 17 per cent. for one and two years. Relatively, the decrease has been less now than for two years after the maximum production in 1873, after the other period of growth. Then the decline continued for three years, and in the third year (1876) the production was 27 per cent. below the maximum and 7½ per cent. less than in the second year of the decline. Should the analogy hold, and there should be a decline from 1884 to 1885 at the same rate as that from 1875 to 1876, it will bring down the production this year to 3,541,800 tons, which would still be nearly 30 per cent. more than in 1879, and much more than in any previous year. But no one is ready yet to believe that the present depression will last as long or be as severe as that after 1873, and consequently a decrease in iron production such as this is not looked for. At this moment, probably, the production is at a considerably less rate than the average for 1884, when the production was much less in the last half than in the first half of the year. Therefore, in order to reach the production of 1884 there must be a considerable improvement at some time during this year.

While the decline after 1873 lasted for three years, there were three years more of comparatively slow recovery before the production of 1873 was reached again, in 1879. The gain in these three years was slow only in comparison with that from 1879 to 1880, being 10½ per cent. from 1876 to 1877, 11½ per cent. from 1877 to 1878, and 19 per cent. from 1878 to 1879, or 47 per cent. from 1876 to 1879. We shall certainly have no reason to complain if there shall be a similar increase now for three years, or even for three years after 1885; beginning now it would give us nearly 5,100,000 tons in 1887, or about 500,000 tons more than in 1882, the year of largest production.

We must not expect history to repeat itself in this exact and deliberate way, however. The comparison is interesting chiefly as showing that if things are as bad now as after 1873 even, the time is not far distant when the demand should begin to improve.

If prices are to take the same course as after 1873, however, the prospect is not very encouraging. Then the decline in prices lasted two years longer than the decline in production, being 60 per cent. from 1873 to 1878; prices have now been declining for four years, but they had declined for two years before production reached its maximum.

The crooked and, for the most part, narrow streets of Boston are pretty well belted with tramways, and ordinarily the street cars, by routes almost past comprehension, afford facilities for reaching any part of the city—in course of time. But with the increase of population the multiplication of horse cars in the principal thoroughfares at certain hours has become a nuisance, and the week before Christmas the accommodation was so utterly inadequate for the numbers desiring to ride, and the blocking of the streets was so frequent and so serious, that there was a loud cry for some improved mode of conveyance and more rapid transit. And the elevated railroad suggested itself to most people as the great desideratum to meet the emergency, if most one would only devise a mode by which it could thread the devious ways of the city.

Meanwhile, Mr. Meigs' plan, which promised to meet the difficulties peculiar to Boston, has not materialized. By an act of the last Legislature he and his associates were authorized to organize under the general laws for the purpose of constructing an elevated railroad upon his plan, subject to certain restrictions and conditions appropriate to the character of the work. Thus far, however, apparently nothing has been done by the parties interested, beyond obtaining from the Railroad Commissioners a certificate that public convenience and necessity require the construction of an elevated railroad between Cambridge and Boston. It would require no great amount of argument beyond the palpable facts to satisfy any disinterested tribunal that Cambridge, with its 60,000 inhabitants, required some better facilities for reaching the metropolis than it now has, and, as we understand, that is all that the certificate of exigency means.

It is rumored that the promoters of the enterprise have negotiated for and secured the privilege of carrying their structure over the bridge of the Boston & Lowell Railroad across Charles River. But it is not probable that any contract to that effect has been made, for there is no organized company; no charter certificate has been obtained, and, so far as is known, the minimum amount of capital stock (\$100,000 per mile) has not been subscribed for, and certain other preliminary requirements have not yet been complied with. But it is now said that the parties interested will proceed in earnest, take all the necessary preliminary steps, and at an early day commence the construction of a mile of the railroad, which is required by their special act to be completed before they can go further.

Some mechanical engineers of experience doubt the feasibility of Mr. Meigs' system, and the uncertainty of the success of so novel an invention has made capital shy of investing in the enterprise. But if it can be shown to be a practical success, even on one mile of road, it is said that a large amount of capital can readily be obtained. To carry the road far enough into the city to make it a public convenience would require a very heavy expenditure; for not only would the cost of construction be very great, but the damages, direct and consequential, would be very heavy. And the liability of the railroad company would not have to be determined at the end of protracted litigation, after the railroad is built and in operation; for the act which authorizes its construction provides that "the owner of any property taken for such railway, or of any property abutting on streets through which said railway may pass, not so taken, in a

manner injuriously affected or lessened in value, whether by smoke, noise, obstruction of light, air or access, disturbance of quiet enjoyment or otherwise, by the construction, maintenance or operation of said railway, may petition for assessment of his damages," etc. And it further provides that "said corporation shall not acquire title to any land, nor enter upon any street, until all damages to the owners of land and abutters on any part of a street occupied or to be occupied by its structure, have been paid or secured in a manner satisfactory to the owners," etc.

Under these circumstances, even if the one mile experiment proves successful, it remains to be seen whether capital will be bold enough to assume the risk.

The arrivals of vessels in the port of New York for eight successive years have been, from foreign ports, from coastwise ports east of New York and coastwise ports south of it, as follows:

	Foreign.	East.	Southern.
1884	2,137	6,035	3,76
1883	1,979	6,376	3,320
1882	1,945	6,476	2,888
1881	1,953	6,929	2,11
1880	1,895	7,827	2,55
1879	1,591	8,077	2,70
1878	1,310	7,318	2,98
1877	1,074	6,244	2,70

It would not be possible to tell from this whether the foreign trade is growing larger or smaller. The number of steamers has increased almost without interruption, and last year was twice as great as in 1877 and 13 per cent. more than in 1880, and probably their average capacity has greatly increased also, while the arrivals of sailing vessels have decreased since 1879 and last year were one-fourth less than in 1879. A decline in the great exports, grain and provisions, has been a good reason for fewer arrivals from foreign ports.

The increase in arrivals of steamers from Eastern ports has been not nearly so great as in foreign vessels, and last year was but 20 per cent. more than in 1877, though the increase since 1881 has been 55 per cent. The sailing vessels from Eastern ports were a seventh less in 1884 than in 1877, and a sixth less than in 1879, though about equal to the average.

The number of steamers arriving from Southern ports was less last year than in any other year since 1879, but there have been no great changes in that time, nor has there been in the arrivals of sailing vessels from Southern ports, which were 6 per cent. more last year than in 1877, and 8 per cent. less than in 1883.

Taking all the arrivals together they have been:

Year.	Steam.	Sail.	Year.	Steam.	Sail.
1877	2,421	19,456	1881	3,349	18,922
1878	2,586	19,080	1882	3,519	19,127
1879	2,931	21,421	1883	3,529	18,183
1880	3,372	19,284	1884	3,632	17,935

This shows an increase of 1,211 (50 per cent.) in steamers and a decrease of 1,521 (8 per cent.) in sailing vessels, since 1877, but since 1881 there has been very little increase in steamers, while the larger part of the decrease in sailing vessels has been in that time, showing as well as can be done by numbers of arrivals alone that the commerce of the port has not been growing.

The grain exports from Atlantic ports are now large for this season of the year, having increased materially since the middle of December, chiefly in corn exports.

For the three weeks ending Jan. 3 the exports have been for five years:

	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.
Flour, bbls.	512,012	224,615	702,155	468,245	529,632
Grain, bu.	6,273,519	3,707,758	5,705,889	3,605,647	6,776,473

Our grain exports were enormous in 1880 and 1881, but not at this season of the year. Before December they had exceeded 4,000,000 bushels a week every week for months, and often had been 6,000,000 and 7,000,000. This season they have been larger in these recent weeks than in any fall week after the middle of September.

Chicago through rail shipments eastward for the week ending Jan. 10 last and the corresponding weeks of previous years have been, in tons:

	1880.	1881.	1882.	1883.	1884.	1885.
40,238	67,426	55,189	65,900	24,796	54,611	

The movement reported last year was exceptional; immediately afterwards it became large. The shipments this year were smaller than in any other except last year and 1880, but nearly the same as in 1883. They were, however, the largest for four weeks, in which they have been, in tons:

	Dec. 20.	Dec. 27.	Jan. 3.	Jan. 10.
Flour	11,861	8,122	9,394	11,836
Grain	26,845	16,938	19,362	29,772
Provisions	14,326	9,324	10,648	13,003
Total	53,032	34,384	39,404	54,611

The gain last week over the previous week was 39 per cent., chiefly in grain.

The percentage of the total shipments by each road for the last six months has been:

	Dec. 6.	Dec. 13.	Dec. 20.	Dec. 27.	Jan. 3.	Jan. 10.
C. & Grand Tr.	14.1	15.4	20.2	15.5	20.4	19.3
Mich. Cen.	24.8	24.0	24.3	22.5	20.0	24.3
Lake Shore	7.5	13.9	11.6	11.7	14.5	9.0
Nickel Plate	12.7	13.9	9.2	17.2	11.5	13.3
Fort Wayne	18.6	12.0	14.4	13.4	15.0	14.9
C. St. L. & P.	6.9	4.9	7.2	6.0	6.3	6.1
Balt. & Ohio	6.4	5.6	7.4	9.2	7.2	7.6
Ch. & Atlantic	9.0	10.3	5.7	4.0	5.1	5.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

The course of the shipments in the last week does not differ much from what it had been for some time previous, the Chicago & Grand Trunk carrying much more than its average and the Lake Shore less. The Nickel Plate also carries

a large share of the shipments—more for the last six weeks than the Lake Shore. The Chicago & Atlantic, on the other hand, has not carried much more than half its share for some time. Last week, the three Vanderbilt roads together carried 46.6 per cent. of the total shipments, and the two Pennsylvania roads 21 per cent.

The Chicago & Grand Trunk carried more provisions than any other road—26.8 per cent. of the whole, against 17.5 by the Fort Wayne and 15.6 by the Michigan Central. The latter carried the most flour (27.4 per cent.) and also the most grain—26.5 per cent.

Much has been said recently of a diversion of grain from Chicago to St. Louis. The reports show that the Chicago receipts have fallen off since the close of lake navigation, as usual, and that the St. Louis receipts have not fallen off. While the lakes are open, the cheapest route to market for a great territory southwest of Chicago—Southern Illinois, Missouri and Kansas—is usually by way of Chicago. When navigation is closed that route is no cheaper than the shorter one by way of St. Louis or other routes south of Chicago.

The decline of receipts at Chicago of late weeks has been wholly in wheat, and what it has lost in this St. Louis has not gained. Thus, for successive weeks, their receipts of wheat have been in bushels:

	Dec. 13.	Dec. 20.	Dec. 27.	Jan. 3.
Chicago	1,302,705	1,287,626	742,240	635,427
St. Louis	297,055	126,545	133,109	131,875

Meanwhile the corn receipts have been:

	Dec. 13.	Dec. 20.	Dec. 27.	Jan. 3.
Chicago	670,376	614,291	797,230	1,046,363
St. Louis	493,440	444,569	595,225	686,350

The great decline of the wheat movement made a great difference in the Chicago receipts, but not in the St. Louis receipts, because St. Louis had not much wheat business to lose. Meanwhile the increase in corn, though much larger in amount at Chicago than at St. Louis, has not made good its loss in wheat. In the first of these weeks Chicago received 86 per cent. more corn than St. Louis; in the last of them, 52 per cent. more. Yet, at this season, when the corn is new, it would seem natural that St. Louis should have a larger proportion of the corn than later, for the corn that has been ripe longest is near to it and much further from Chicago. Of course lower rates from St. Louis than from Chicago tend to bring grain to St. Louis; the movement to St. Louis so far reported, however, does not indicate that any great effect has been produced by the shipments at low rates to Newport News. As for shipments in barges down the Mississippi, which have been given as a cause of a diversion to St. Louis, we find none reported, the total shipments down the Mississippi reported or November and four weeks since having been:

	Dec. 13.	Dec. 20.	Dec. 27.	Jan. 3.
November.	310,069	332,485		4,562

There are now large exports of corn, and any route which can get the grain from the West to the seaboard at a very low price is likely to get a good deal to carry, provided that low ocean rates are made from its terminus.

The Grand Trunk Railway shows a shocking loss of net earnings in November, from £121,941 to £84,770, or £37,171, which is nearly 47 per cent. The decrease in gross earnings was £71,064, which is not quite 20 per cent. (against 23½ per cent. on the Erie in the same month), but the decrease in expenses was less than 6 per cent. on the Grand Trunk, against 13 per cent. on the Erie. In the same month the Chicago & Grand Trunk had a decrease of 6.4 per cent. and the Detroit & Milwaukee a decrease of 16 per cent. in gross earnings.

#### Record of New Railroad Construction.

Information of the laying of track on new railroads in the current year is given in the present number of the *Railroad Gazette* as follows, the new track thus noted being the first reported for 1885:

Louisville, New Orleans & Texas.—The Greenville Branch is extended west to Greenville, Miss., 5 miles.

This is a total of 5 miles thus far reported. The new track laid to the corresponding date for 13 years past has been:

	Miles.		Miles
1885.....	5	1878.....	
1884.....	4	1877.....	
1883.....	24	1876.....	1
1882.....	8	1875.....	1
1881.....	25	1874.....	4
1880.....	10	1873.....	

This statement includes main track only, second tracks and sidings not being included.

#### NEW PUBLICATIONS.

*The Theory of Deflections and of Latitudes and Departures*, with special application to curvilinear surveys for alignments of railway tracks. By Isaac W. Smith, C. E.

It is, we think, doing no injustice to this book to define it as a mathematical curiosity which those interested in abstract geometry, for its own sake, will do well to examine, and which those having in view the purely practical end of sticking the stakes for a railroad line will do well to let alone. It is not exactly a field-book, since it does not contain the usual tables of curves, angular functions, etc., but it gives most of the usual and some quite unusual formulae for field-work, the formulae themselves having nothing new

or strange in them (as of course they could not, the old formulae being known to be true), but often expressed, and always deduced, in a manner and with a style of nomenclature which, as the author himself tells us, "will probably be unintelligible to those who start in the middle of the book," a "large portion of the treatise" being "devoted to the explanation of the nature of the quantities computed." As, however, the ordinary processes of deduction for the formulae of practical field work seem quite simple enough, and quite as simple as those here presented, to say the least, an adequate motive for studying, as it were, a new mathematics, in order to reach the same end by a different road is not apparent, and as for those "results from general formulae," some of which the author himself admits to be "more curious than useful," they may be left to those who love to study such problems for their own sake and not for their practical applications. To such, so far as appears from the examination which we have been able to give, the book will have much interest, and it is not in any opprobrious sense that we are compelled to pronounce it not practical.

The manner of presenting the numerous figures, on folding plates at the back of the book, is a relic of barbarism which it is surprising to see revived in such a book, and which would alone do much to make the book unpopular.

#### The Elements of Railroad Engineering.

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#### X. MOVEMENT OF PASSENGERS.

The passenger is a patron; he ought to be treated in such a manner that his patronage will be continued; it is for the interest of the railway company that he shall be courted, surrounded with conveniences and placated by attentions. The passenger department appreciates this, and in glowing terms, as well as in glowing colors, holds out all sorts of generous inducements to the public to patronize the *only line* which has the comfort of the passenger at heart. Unfortunately, the employees of the transportation department, upon whom is devolved the care of the traveler after the passenger department has sold him a ticket, are not so much impressed with their obligations toward this patron as they ought to be; it is their principal concern to "put him through," without much regard to whether he shall return by this favorite route or not. To their eyes he is not a patron, but a parcel; if delivered at destination in an undamaged condition, the contract of the forwarder will be fulfilled.

This is the most natural attitude of the mind for men who have been reared as the conductors of our passenger trains have usually been. In a great majority of instances the conductor begins his railroad life as a brakeman; he enters the service as a rough, intrepid, sanguine fellow, who has conceived the idea that he would like to *railroad* it for a while. Upon a freight train he learns plenty of railroading, but his energies are absorbed in quite other duties than an exchange of civilities with travelers. By constant and manly devotion to these, during years of hardship, involving great dangers to life and limb, he experiences the training of an athlete, not of a courier, while he learns to run trains safely according to the rules; and he is at length promoted to be a freight conductor. Some more years of that hard life in this capacity finally secure for him the great reward of merit, and he becomes a passenger conductor.

Energy, promptness, vigilance and obedience to orders are the characteristics by which he has earned his promotion, and are those which will continue to influence his conduct; they are the most valuable qualifications which he can possess, both for the advantage of the railway company and for the safety of the traveler; and until he has been for a long time in this new service, he will not appreciate fully the importance of minor things, unless he is endowed with uncommon quickness of apprehension.

The other trainmen have commonly had less opportunity than the conductor for instruction in the smaller, but important, details of caring for the passenger train and its occupants.

Now it is clearly not from ill-will, but from a want of training, that their deficiencies arise; the approximate remedy for which is to supply the necessary education in the shortest and readiest way. It would be very well to organize a *school of the train-man*, as in the army they have the "school of the soldier," failing this, the most evident substitute for it will be provided by sending competent inspectors constantly over the road upon the passenger trains to instruct all the employees in the minutiae of their business.

The foregoing remarks are intended, of course, as generalities; there are most gentlemanly and affable conductors, as well as admirable train-men; the object of this disquisition is to suggest how others may be formed after their model.

The more accomplished conductors upon any road would be likely to be the most efficient and most acceptable inspectors who could be selected; they should have no authority except to teach; but should report incorrigibles to the superintendent for "promotion to the freight." They will find that the men neglect many things for which plain rules are printed in the regulations; possibly the men have not read them, or have not remembered them. Among the things which they will first need to teach is attention to the temperature and ventilation of the coaches; the trainmen are passing continually into the fresh air and are naturally somewhat indifferent to the state of the air inside; but the comfort of the passenger depends as much upon this as upon any other one circumstance connected with the railroad excursion. Other needed lessons will be, not to pass through the coaches oftener than is necessary; to go through them quietly; not to slam the doors, nor allow others to

slam them; not to bawl the names of stations while the doors are open, but to announce them in a clear, moderate tone, with the doors closed. Let the trainmen be instructed to assist ladies and infirm persons on and off the train, and to provide all passengers immediately with seats, not compelling them to make room for themselves. They should also be taught consideration for the poorer classes of voyagers, who need it more than the richer ones; especially for the foreigners, who do not understand our customs, and, often, not our language; even mercenary considerations should prompt this, for "bread cast upon these waters will return after many days."

The American traveler is distinguished by an inquiring mind, and, as if to furnish a complete antithesis, the least communicative of all creatures, it is said, is the American railroad man. This difference has been compromised, at a few great termini, by the establishment at each of a "bureau of information," an institution which cannot be too highly recommended for imitation; but on the road it is very desirable that the train-men, when asked for it, shall give the wayfarer such information as they can. It could usually do no harm to tell him the cause of a detention from which he is suffering. It would often do some good, to impart particulars about an obscure junction at which the stranger must debark in the darkness. The French instruction books contain a rule which we can profitably copy, although we cannot exactly translate it. It reads: "The employes must conduct themselves toward travelers as if they were *eager* (empressé) to oblige them."

The condition of coaches at starting, and of waiting rooms, also demands the inspector's attention; for the chilling dampness of soaked wooden floors, in the station and in the coach, is apt to curdle the blood of the passenger who takes an early train from a terminal station. Floors ought never to be soaked; they will be cleaner, more comfortable and more durable if washed with only a moderate quantity of water; and they can then be dry when required for use. On some roads the distinction between the several classes of coaches is but little observed, because there are not enough of the inferior classes, so that the most expensively furnished coaches are frequently used for second class and for smokers, sometimes even for emigrants. Aside from the enormous wastefulness of providing plush-covered seats for such uses, it should be remembered that they do not part with the fragrance which has been so imparted to them; and the passenger who has paid for a first-class ticket will think, if he does not complain, that he has not been furnished with first-class accommodations if placed in a coach which has been so used, even if it is a new one. It would be better to provide a surplus of cars for the inferior classes, rather than of the superior kinds, for passengers will prefer to ride, upon a pinch, in those with hard seats to being placed in finer ones which have been befouled.

Upon every road which has tried putting its men into uniform, the effect has been found to be extremely good; it leads at once to decorous behavior, and it is certainly very desirable that passengers shall be able to distinguish at once all the persons in the employ of the company from whom they are likely to require a service. Upon the larger roads all the employes should be uniformed or distinguished by some noticeable badge, in order that they may be recognized by officials. In times of trouble this is of great importance, for in the throng which huddles about on such occasions, it is impossible, unless they are so indicated, to select men who should obey orders from those who are not subject to them.

It contributes much toward making passengers contented to afford them, at frequent intervals, the opportunity of getting something really good to eat and drink. The hunger and thirst of the richer class are reasonably well taken care of by the dining cars and buffets; but the greater number do not patronize these luxurious institutions, and the passengers at a station waiting for a belated train are not ministered unto by them. Railways generally establish a few main refreshment rooms, at which trains stop for passengers to eat a hasty lunch, but do not encourage the sale of refreshments at other stations; yet the comfort of many would be promoted by neat lunch counters at all considerable stations; they would also serve to maintain a competition in quality of the food, which might improve the present standard.

The number of passengers carried will be increased by more frequent trains; whether the additional number will be sufficient to justify the expense of running them or not will depend upon the population to be accommodated, but the fact of an increase proves that more passengers will travel if the hours of the trains are convenient for them than if they are not. It is, therefore, a matter for careful study how best to adapt a few local trains to the wants of the community; it will generally be found that those way trains which run nearest the middle of the day carry the most passengers. The apparent reason for this is, that people living at a distance from the line of the road have time to reach the stations without rising at inconveniently early hours, and that they aggregate more than those who live in the villages upon the immediate borders of the railway, who take the earlier trains. The local accommodation trains and commuters' trains must be run very exactly on time, in order to give satisfaction or to do justice to the commuters; their business appointments will be arranged to suit the time of the trains, and even a slight delay may cause them a loss. There is often a temptation to managers to carry excursions or extra car-loads of people on these trains, causing them to be retarded, when it would be just and judicious to run a special train for the extra cars. When once the best time for a local or for a commuters' train has been arrived at and properly adjusted, the schedule should be maintained as nearly as possible without variation, because the household

and business habits of the country which it serves become adapted to it, and a variation, however slight, causes a vexatious change in the arrangements of a great number of people. The only change which is ever tolerable is to quicken the time of the train, leaving the country terminus later in the morning, but arriving at the city as before. The occasional through passenger can bear a change of schedule better than the daily patron; yet the old established through trains, which have been continued for years in succession, always carry more passengers than the faster expresses upon recent schedules, until these have been running for a long time; for tributary railroads with their connections, and all the stage lines from neighboring districts will have become gradually fitted to the older schedules, and it requires a long period of time to enable them generally to conform to a new one.

At many, indeed at most, stations, even the largest, there is a lamentable want of porters to assist in the conveyance of hand baggage from the train to the carriages, and from the carriage or waiting room to the train, so that the most delicate persons are compelled to grapple with their handbags and wraps and to struggle along as best they can. The self-dependent, healthy American citizen, and his wife and daughters, are accustomed to do this from early childhood and do not mind it much until they have been abroad; after they have been so carefully attended as they are in the western countries of Europe, where the passenger business receives more consideration than it does with us, they miss the ready help which meets them there at the door of the railway coach. Probably the railways which first imitate the foreign roads in providing these porters, and in insuring cheap means of conveyance, by cabs and railroad omnibuses, to and from the depots, will secure the larger share of the patronage of that now somewhat numerous class who have made a foreign tour. Wheeled chairs and stretchers for the helpless are needed at large stations, but are not always provided.

There is no present hope of reform in our baggage arrangements, probably; the system of carrying baggage free up to a certain excessive weight has prevailed so long that the more just plan of charging for all baggage would be revolutionary. A reform might be inaugurated by a slight reduction in fares to persons without baggage, which would possibly reduce the heavy loads now carried. The change would be much more important for the railways than at first sight appears, because the competition between passenger agents leads to the carriage of immense quantities of sample trunks free, in order to secure the sale of tickets. A limitation should be placed upon the size and weight of trunks, by agreement of the passenger agents, for they are already so heavy that the force at small stations is not sufficient to put them aboard the passing trains.

CHARLES PAINE.

#### American Practice as to Rails and Ballast.

The following informal notes summarize the information gathered under the above head from the circular as to track details sent out from this office, from which the data as to even or broken joints, nutlocks and cross-ties have already been published. The information given as to weights of rail has been supplemented by that contained in "Poor's Manual."

The character of the questions asked under this head, which were simply "kind of rail" and "character of ballast," was not such as to draw out very full or exact statistics on this subject, nor was it intended to do so, since the great labor involved in anything like a full statistical presentation of the number of miles of each kind and weight of rail and of each kind and depth of ballast would probably have made it impossible to gather the desired information for even half of the large mileage (90,900 miles out of 121,592 in operation in the United States) from which the information requested was actually obtained. All that was intended by the questions asked was to obtain a general idea of the character of the superstructure, especially as shedding light on the interpretation to be given to the responses as to the use of broken or even joints in tracklaying. Nevertheless, the responses as to rails and ballast are not without interest.

#### NEW ENGLAND STATES.

Only 65 miles of the 3,656 reported is ballasted with sand, the remainder all with gravel, no rock ballast whatever being reported as in use. The sand ballast on one double-track line is reported 18 in. deep.

The heaviest rail now laid in New England appears to be 72 lbs., on the New York, New Haven & Hartford. The New York & New England and Old Colony use some 66 and 67 lb. rails, and the Providence, Warren & Bristol (16 miles) is laid with 69 lb. rails. The Eastern Railroad uses some 63 lb. rails. The remaining mileage is about equally divided between 56 and 60 lbs. Two lines, the Hartford & Connecticut Western and the St. Johnsbury & Lake Champlain, report about half their mileage as still of iron. The remainder specify no iron.

#### MIDDLE STATES.

Out of 80 lines reporting (14,009 miles) in New York, New Jersey, Pennsylvania, Delaware and Maryland, 7 lines with 3,111 miles use stone ballast exclusively, and 9 other lines, aggregating 5,432 miles, use more or less stone. A rude estimate from the known character of these latter lines would indicate that from 800 to 1,000 miles was laid with stone or furnace slag, making in all nearly 4,000 miles, out of 14,000 reported, laid with stone. A much smaller proportion of the 2,851 miles in the Middle States from which we have no reports, however, is probably laid with stone, since few very prominent lines are included; but after

making all allowances it would appear that very nearly one-quarter, certainly more than one-fifth, of the total mileage in the Middle States is laid with broken stone, most of it in the states of Pennsylvania and Maryland. Every other road in this section is reported to be ballasted with gravel, except the Long Island Railroad, which is mostly ballasted with sand.

The heaviest rail in the Middle States appears to be an 82 lb. rail on the New York Central & Hudson River, a few miles of which have been recently laid down. The Lehigh Valley uses a 76 lb. rail, which is the next heaviest, and was illustrated in the *Railroad Gazette* for Dec. 22, 1882 (where it is given as a 74 lb. rail). The New York, West Shore & Buffalo has a 67 lb. rail, as have also the Pennsylvania, the Baltimore & Ohio, the Philadelphia, Wilmington & Baltimore and several other lines. Most of these lines, however, are not completely equipped with 67 lb. rails, having much 60 lb. rail on branches and even on the main line. The New York, Lake Erie & Western and several other lines use a 63 lb. rail, and the New York Central and Hudson River chiefly a 65 lb. rail. The mileage of rail so light as 56 lbs. would appear to be quite small, only some 600 or 700 miles positively appearing, most of it on roads using also heavier rails.

#### SOUTHERN STATES.

Throughout the Southern States, east of the Louisville & Nashville Railroad, 50 and 56 lb. rails prevail. In Virginia the Chesapeake & Ohio uses 60 lbs., but no other road in the south is reported as using so heavy a section. The rule in Virginia is 56 lb. rails, and the mileage further south seems to be approximately evenly divided between 50 lbs. and 56 lbs. A large amount of old iron rail is still in use. Considerably more than one-third of the mileage in Virginia from which we have reports, is ballasted with broken stone. Five different roads report more or less of it, and the Chesapeake & Ohio is almost wholly ballasted with stone. Only two roads in Virginia report considerable parts of their lines without any ballast, although others perhaps might have done so. The same is true of the lines further south, the ballast on which seems surprisingly good. Only a small portion, apparently not over 5 to 8 per cent., although it is impossible to say exactly, seems to be without any ballast, although many lines along the coast have nothing but sand. There would seem to be about 10 per cent. ballasted with rock, furnace slag, disintegrated granite or other first-class ballast.

#### SOUTHWESTERN.

In this section, extending far enough east to take in the Louisville & Nashville Railroad, and including the roads in Missouri south of the Missouri River, the prevailing rail is 56 lbs., small amounts only of 50 lb. rails being in use on two or three lines. This light rail (50 lbs.) seems to have been used on many roads in the South and Southwest, when first introducing steel, as a substitute for 60 lb. iron rails, some six or eight lines in the two sections reporting more or less of both in use. The Louisville & Nashville uses a 58 lb. rail; the Cincinnati Southern, a 60 lb. rail; the St. Louis, Iron Mountain & Southern, a 63 lb. rail, and the St. Louis & San Francisco considerable quantities of 67 lb. rail. The Atchison, Topeka & Santa Fé uses 52, 56, 61 and 70 lb. rails, although but little, we believe, of either of the two extremes, 56 lb. rails predominating.

The ballast of both the Louisville & Nashville and the Cincinnati Southern is reported as being good throughout and largely broken stone or (on the latter line) furnace slag. The lines close along the coast are mostly ballasted with sand, although two lines report long stretches as ballasted with shell. Four of the more important lines further north report more or less rock ballast in use, including, for example, 280 miles in one stretch on the Central Branch in Kansas now worked by the Missouri Pacific. There are no positive reports of lines or considerable sections of lines entirely without ballast, except in the westerly portion of this section, where the Atchison, Topeka & Santa Fé, for example, reports only 200 miles of its main line as ballasted with stone or gravel, and all the remainder only with earth. The same is true of several other lines in this section. Much of the natural soil of Western Kansas, Texas and New Mexico, however, makes a dry and good road-bed.

#### NORTH OF THE OHIO.

In the states of Ohio, Indiana, Illinois and Michigan there appears to be very little rail on standard-gauge roads lighter than 56 lbs. per yard, only two roads, aggregating 371 miles, reporting 50 or 52 lb. rails in use. All the lines of heavier traffic seem to use 60 lb. rails. The Lake Shore & Michigan Southern and part of the Cleveland, Columbus, Cincinnati & Indianapolis are laid with 65 lb. rails, and the Chicago & Alton in part with 70 lb. rails. The Pittsburgh, Fort Wayne & Chicago uses the Pennsylvania 67 lbs. rail, but part of it is still laid with 60 lb.

The ballast used is mainly gravel, but with many hundred miles of line in Ohio ballasted with furnace slag, as, for example, most of the Columbus, Hocking Valley & Toledo. Six roads, all of them important lines, report more or less broken stone ballast. The Pittsburgh, Fort Wayne & Chicago is almost exclusively stone or furnace slag, and the southerly system of Pennsylvania lines quite largely so. One line only, in Illinois, reports 254 miles ballasted with "black soil," although there is in this section, no doubt, a very much larger mileage of this kind of track than would appear from the face of the reports which we have, especially on branches and minor lines. The percentage of lines without any ballast, however, would appear to be very small, although five of the important lines report a certain portions of their ballast as "earth."

#### NORTH AND WEST OF CHICAGO.

All the prominent lines centering in Chicago appear to be

now laying steel weighing from 65 to 67 lbs. per yard, except the Chicago, Rock Island & Pacific, which is content with 60 lbs. Nearly all the remaining lines are laid with 56 lbs., which is the predominating rail in this section, with small amounts of 52 lbs. still in use.

The roads of this section are so largely consolidated into large lines, embracing sections in all varieties of condition, from fine rock ballast to no ballast at all, that it is impossible to draw any very accurate deductions as to general conditions of ballast. Out of 15 roads from which we have reports, six report more or less rock ballast, but three of these report also more or less earth. Four others, aggregating 1,252 miles, report earth ballast exclusively, and one line nearly half its length (195 miles out of 423) ballasted with "mud." The indication would seem to be that a very large proportion of the mileage in this section is still without any ballast whatever, perhaps as much as 25 per cent., the large percentage being mainly due, no doubt, to the rapid addition of new mileage.

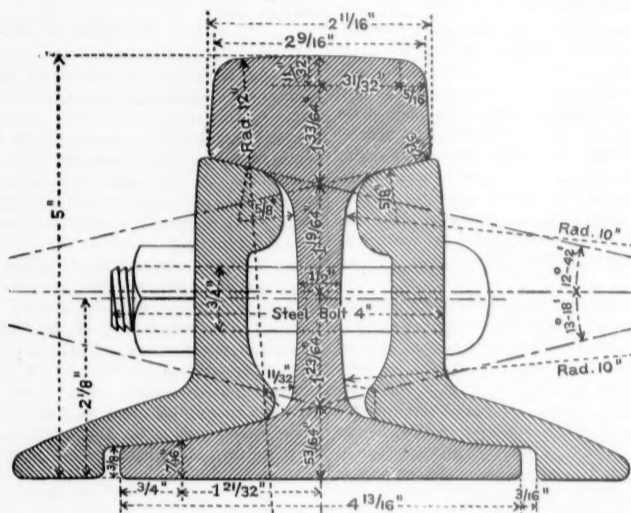
#### FAR WEST AND PACIFIC.

The Denver & Rio Grande (narrow gauge) uses 30 lb. iron and 30, 36 and 40 lb. steel. On standard-gauge roads

base contract in cooling so as to be straight under continued heavy traffic.

Further investigation showed, moreover, that the pressure on each individual tie might be lessened by making the rail stiffer, so as to distribute the weight of a loaded wheel upon three or more ties, instead of allowing a weak bending rail to concentrate it on one. The rail therefore was especially designed with a view to vertical stiffness. It is estimated to be 42 per cent. stiffer than the present standard 65 lb. rail of the New York Central. About the heaviest steel rails of a flat-footed section ever rolled were those designed by Mr. B. Baker for the Metropolitan Railway in London. They were specially designed on the opposite principle, to obtain sufficient bearing surface on the ties by means of a broad base rather than by any unusual vertical stiffness. These rails were  $4\frac{1}{2}$  in. deep against 5 in. of the New York Central, while the base was no less than  $6\frac{1}{2}$  in. wide, against 4 13-16 in. of the New York Central. The weights were nearly equal, the English rail being slightly heavier (84 lbs.), but the New York Central rail is estimated to be 28 per cent. stiffer.

The increased width of head has been preferred to in-



NEW YORK CENTRAL & HUDSON RIVER RAILROAD. Section of 80 Pound Steel Rail.

#### THE HEAVIEST RAIL IN AMERICA.

only 56 lb. rails seem to be in use to any extent, but there is a considerable mileage of 50 and 52 lb. rails, and a much less mileage of 60 lb. rails on the lines of heaviest traffic.

Disintegrated granite is largely used for ballast on the Denver & Rio Grande, the remainder being ballasted with sand. About half the length of the Union Pacific and sections of the Oregon lines are ballasted with "dirt," but in the main, so far as appears from the lines from which we have reports (covering, however, less than half the total mileage of this section), the roads are fairly ballasted, chiefly with gravel, but in part with rock.

#### CANADA.

The Grand Trunk is mostly laid with 65 lb. rails; all the remaining lines from which we have reports with 56 lb. rails. Gravel, with some sand, is the only ballast reported in use, no lines being wholly without ballast.

#### ENGLAND.

The double-headed or I-pattern of rail is reported in use on all the six lines from which reports were received, covering 5,634 miles, or about 42 per cent. of the mileage of England and Wales. The weight per yard varies from 80 to 85 lbs., except on the Metropolitan District Railway of London, which uses 87 lb. rails. Two important lines are ballasted chiefly with ashes; the others chiefly with gravel, with some rock.

#### The Heaviest Rail in America.

The New York Central is now using the heaviest rail in this country on the section of its line from the Grand Central Depot to Mott Haven Junction, where the Harlem line leaves the Hudson River line. This portion of the line is about five miles long, chiefly in the tunnels or on the viaducts of what is known as the "Fourth Avenue improvement." It has an enormous passenger traffic, including that of the New York Central, the Harlem and the New York, New Haven & Hartford, but not much freight traffic, as the New York Central freight enters and leaves the city by the old Hudson River line.

The rail used here weighs 80 lbs. per yard, and was laid down last August, and has therefore been now in use sufficiently long to enable its wearing qualities to be approximately estimated. As will be seen from the annexed illustration, which shows a section of the rail, the head is unusually wide and flat, and the foot unusually stout and thick, and somewhat narrow for the height of the rail. These proportions have been adopted by the designer, Prof. P. H. Dudley, after a careful study of the facts as to wear of rails on the New York Central, and therefore the rail may be said to have been designed specially for the conditions prevailing on the New York Central.

It was proposed at first, when designing the new rail, to widen the base so as to prevent the rail cutting into the ties. But the makers of rails objected that there were considerable practical difficulties in rolling a wide base, and still further difficulty in making a rail with a wide

creased depth of head as a means for prolonging the useful life of a rail. It is believed not only that the increased width will cause the wheels to run longer by giving them a wider bearing surface, but that it will to some extent prevent the wheels wearing hollow on the tread. Another reason in favor of a wide rather than a deep head was found in the fact that, when a rail has worn down a certain distance, the surface becomes so rough that the rolling stock is damaged, and it is therefore really more economical to renew the rail than to wear it out.

The form of the upper surface of the head was arrived at after careful examination of various worn wheel treads in service, and the head of the rail was curved to fit the average section of the wheel tires in actual service. The result seems very satisfactory so far, as the wear appears to be very evenly distributed over the head.

The stout foot was adopted to give plenty of metal to resist the corrosion where it rests on the tie. Rails in tunnels and other wet places have been found with the corners of the flanges worn away to a knife edge from this cause.

Harvey's grip track bolts are used with these heavy rails.

The rails are laid to break joints, and are secured to the ties at the ends and centres by Bush's interlocking bolts, spikes being used at the intermediate ties. These bolts are largely used in the yard at the Grand Central Depot, and a careful personal inspection showed that in every case the rail and tie were held firmly together, keeping the line in gauge and surface, and contrasting strongly with the behavior of spikes used in similar situations.

### General Railroad News.

#### MEETINGS AND ANNOUNCEMENTS.

##### Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

*Boston & Albany*, annual meeting, at the Meionaon in Boston, at 11 a. m., Feb. 11.

*Connecticut River*, annual meeting, at the office in Springfield, Mass., Jan. 21, at noon.

*Fitchburg*, annual meeting, at the passenger station in Boston, at 11 a. m., on Jan. 27.

*Lehigh Valley*, annual meeting, at the office in Philadelphia, Jan. 20, at noon.

##### Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

*Indianapolis Stock Yards & Belt Co.*, 3 per cent., semi-annual.

*St. Louis & San Francisco*,  $3\frac{1}{2}$  per cent., semi-annual, on the first preferred stock, payable Feb. 2, to stockholders of record on Jan. 15.

*St. Paul, Minneapolis & Manitoba*,  $1\frac{1}{2}$  per cent., quarterly, payable Feb. 2. Transfer books close Jan. 17.

*Wilmington & Weldon*, 4 per cent., semi-annual, payable Jan. 16.

##### Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

The *Car Accountants' Association* will hold its annual

convention at Minneapolis, Minn., beginning on Tuesday, June 23.

The *Master Car-Builders' Club* will hold regular meetings at its rooms, No. 113 Liberty street, New York, on the evening of the third Thursday in each month. The next regular meeting will be on Thursday, Jan. 15.

The *New England Railroad Club* will hold its regular meetings at its rooms in the Boston & Albany station in Boston, on the evening of the third Wednesday in each month. The next meeting will be held Wednesday, Jan. 28.

The *Western Railway Club* will hold regular meetings at its rooms, No. 103 Adams street, Chicago, on the third Wednesday in each month.

#### Foreclosure Sales.

The sale of the *Austin & Northwestern* road has again been postponed, and is now announced for Feb. 18 next, in Austin, Texas.

#### Southwestern Railway Association.

The General Freight Agents of the roads in the Southwestern Association met at the Commissioner's office in Chicago, Jan. 8, to consider Commissioner Midgley's recommendation for the reorganization of the association. No conclusion was reached, there being much difference of opinion as to the Commissioner's plans, and an adjournment was had until Jan. 20.

#### New England Railroad Club.

The regular monthly meeting of this Club will be held on Wednesday, Jan. 28, at 7.30 p. m., in its rooms in the Boston & Albany station in Boston.

**Subject for Discussion.**—Do the facts in relation to the safety and economy of the steel-tired wheel, for engines and cars, warrant its universal adoption; and is there a difference in the durability and relative value of the various kinds? Do wrought-iron brake shoes damage steel wheels more than cast-iron?

Manufacturers of wheels and wheel-tires are especially invited to attend this meeting and present facts in regard to their products.

Master mechanics, master car-builders, and others who have any knowledge of the manufacture or service of wheels are requested to present at this meeting any records or information they may have upon the subject.

#### ELECTIONS AND APPOINTMENTS.

*Augusta & Savannah.*—At the annual meeting in Savannah, Ga., Jan. 5, the following directors were chosen: John S. Davidson, John L. Hardee, A. R. Lawton, W. S. Lawton, A. L. Hartridge, George S. Owens, Ferdinand Phinizy. The road is leased to the Central Railroad Co. of Georgia.

*Bell's Gap.*—At the annual meeting in Philadelphia, Jan. 12, the following were chosen: President, C. F. Berwind; Treasurer, J. G. Cassatt; Secretary, S. T. Billmeyer; Superintendent, R. G. Ford; directors, John Reilly, Aaron Fries, J. H. Converse, Frank S. Lewis and Samuel G. Lewis.

*Buffalo, New York & Philadelphia.*—At the annual meeting in Philadelphia, Jan. 12, the following were chosen: President, G. Clinton Gardner; directors, C. H. Clark, E. A. Rollins, B. K. Jamison, E. W. Clark, Isaac N. Seligman, E. F. Winslow, A. N. Martin, C. H. Allen, Bryce Gray, E. L. Owen, B. C. Rumsey and P. P. Pratt.

*Cadillac, Manistee Valley & Lake Michigan.*—The office of this new company is at Sherman, Mich.; the officers are as follows: President, C. S. Marr; Vice-President, Wm. E. Dean; Secretary, J. H. Wheeler; Treasurer, Sanford Gasser.

*Camden, Gloucester & Mt. Ephraim.*—Mr. W. Bertolet is appointed Superintendent in place of F. S. Urie, resigned. He is also Superintendent of the Philadelphia & Atlantic City road.

*Central, of Georgia.*—At the annual election in Savannah, Ga., Jan. 5, the following directors were chosen: H. M. Comer, George Cornwell, W. W. Gordon, E. M. Green, J. J. Gresham, John M. Guernard, Wm. Hunter, S. M. Iman, George J. Mills, Abram Minis, W. G. Raoul, Jacob Rauers, R. B. Reppard.

*Central Vermont.*—Mr. James M. Foss, for some time past Assistant Superintendent and also Superintendent of Motive Power, has been appointed General Superintendent, an office which has been vacant since Mr. J. W. Hobart was made General Manager. Mr. Wm. J. Robertson succeeds Mr. Foss as Superintendent of Motive Power.

*Chartiers & Youghiogheny.*—At the annual meeting in Pittsburgh, Jan. 12, the following were chosen: President, J. E. Schwartz; Directors, Jacob Henrich, Henry Hice, Edward Gregg, O. P. Scaife, John Reeves, Roger Hartley, John G. McConnell, J. H. Ferguson, Thos. McConnell, Robert Wardrop.

*Columbus, Hocking Valley & Toledo.*—At the annual meeting in Columbus, O., Jan. 13, the following directors were chosen: Stevenson Burke, Charles Hickox, J. H. Wade, Charles G. Hickox, Cleveland; C. H. Andrews, Youngstown; M. M. Greene, Columbus. The directors elected the following officers: President, M. M. Greene; First Vice-President, Stevenson Burke; Second Vice-President and Secretary, William M. Greene; Treasurer, W. N. Cott.

*Delaware, Maryland & Virginia.*—Traffic Manager A. Brown is now Acting Treasurer, with office at Georgetown, Del., in place of D. H. Houston, resigned.

*East Broad Top.*—At the annual meeting in Philadelphia, Jan. 12, the following were chosen: President, William H. Ingham; Vice-President, Edward Roberts, Jr.; directors, Edward Roberts, Jr., Arlo Pardee, George B. Markle, Percival Roberts, Edward R. Wood, Charles Hacker, Franklin A. Comly; Secretary and Treasurer, William B. Jacobs.

*East Tennessee, Virginia & Georgia.*—A Georgia Court has appointed R. T. Dorsey and E. P. Alexander Receivers of this road in that state.

Mr. Oliver Hoyt has been chosen a director in place of P. S. Peters, resigned.

The Atlanta and the Brunswick divisions of this road have been consolidated and will be known as the Georgia Division, with J. W. Fry as Superintendent. Mr. J. E. Mallory (late of the Brunswick Division) is appointed Assistant Superintendent of the division.

*Engineers' Club of Philadelphia.*—This club has elected the following officers for the year: President, J. J. De Kinder; Vice-President, Joseph N. DuBarry; Secretary and Treasurer, Howard Murphy; directors, T. M. Cleemann, Frederick Graff, Rudolph Hering, William Ludlow and Henry G. Morris.

*Kings County Elevated.*—At the annual meeting in Brooklyn, N. Y., Jan. 13, the following directors were chosen: Gen. Quincy A. Gillmore, E. A. Abbot, Harry

Farrington, Joseph E. Gray, H. J. Robinson, J. O. Sheldon, Samuel Thorn, Gen. James Jourdan and Wendell Goodwin. The board organized immediately, electing as officers: Gen. Quincy A. Gilmore, President and Chief Engineer; Gen. James Jourdan, Vice-President; H. J. Robinson, Secretary; J. H. Frothingham, Treasurer; Counsel, Judge George Shay. This is a different corporation from the Brooklyn Elevated.

**Lehigh Coal & Navigation Co. Leased Lines.**—At the annual meetings in Philadelphia, Jan. 12, officers were chosen as below for the companies named, which are controlled by this company: **Lehigh & Lackawanna**—President, F. C. Yarnall; directors J. S. Harris, F. W. Clark, F. Hazard, Edward Lewis, **Nesquehoning**—President, J. B. Moorhead; directors, Francis P. Cope, W. G. Moorhead, W. P. Cresson, I. V. Williamson, W. C. Ludwig, George Whitney, Joseph S. Harris, E. W. Clark, T. C. Henry, F. C. Yarnall, P. C. Garrett and Edward Lewis, **Trescow**—President, F. C. Yarnall; directors, J. S. Harris, E. W. Clark, G. Whitney, Edward Lewis, E. Hill and C. E. Howell, **Wind Gap & Delaware**—President, F. C. Yarnall; directors, J. S. Harris, G. Whitney, S. Shepherd, T. Hill, O. W. Clark and C. F. Howell.

**New York City & Northern.**—At the annual meeting in New York, Jan. 13, the old board was re-elected without change.

**New York, New Haven & Hartford.**—At the annual meeting in New Haven, Conn., Jan. 14, the old directors were re-elected, Joseph Park, of Rye, N. Y., being chosen to fill the vacancy made by the death of Augustus Schell.

**Norwich & Worcester.**—At the annual meeting in Worcester, Jan. 14, the following directors were chosen: Josiah H. Clark, Edward L. Davis, Francis H. Dewey, Thomas B. Eaton, Samuel Woodward, Worcester, Mass.; Lorenzo Blackstone, Wm. A. Slater, Norwich, Conn.; Wm. G. Weld, Newport, R. I.; Wm. Bayard Cutting, New York.

**Old Colony.**—The following circulars from Mr. J. N. Lauder, Superintendent of Rolling Stock, are dated Boston, Jan. 7: "Mr. F. M. Twombly is hereby appointed Master Mechanic of Main Line and Cape Cod divisions, vice C. Berkeley Powell, resigned; the appointment to take effect this day."

"Mr. Arthur W. Twombly is hereby appointed Master Mechanic of Northern Division, vice F. M. Twombly, transferred; the appointment to take effect this day."

**Oregon Railway & Navigation Co.**—Mr. John Muir has been appointed Traffic Manager of this company's lines, with office in Portland, Oregon.

**Pennsylvania & New York.**—At the annual meeting in Philadelphia, Jan. 12, the following were chosen: President, Eliza P. Wilbur; directors, Robert H. Sayre, Charles Hartsborne, Victor E. Piollet, Garrett B. Linderman, Robert Lockhart, William H. Sayre, James I. Blakslee, Howard Elmer, Eliza A. Hancock, Frederic Mercer, Wm. Stevenson and John B. Garrett.

**Pennsylvania Railroad Leased Lines.**—At the annual meetings in Philadelphia, Jan. 12, officers were chosen as below for the companies named, whose lines are leased to the Pennsylvania: **Martin's Creek & Stroudsburg**—President, J. N. DuBarry; directors, R. D. Barclay, John P. Green, Wistar Morris, William A. Patton, G. R. Roberts, Frank Thompson, **Neary**—President, Joseph Fitchner; directors, J. N. DuBarry, John H. Green, Adam Hoover, Wistar Morris, Alexander Knox, Francis McCoy, Henry McIntosh, G. R. Roberts, N. P. Shortridge, Edmund Smith, H. D. Welsh, J. P. Wetherill, **Philadelphia, Germantown & Chestnut Hill**—President, Henry D. Welsh; directors, Alexander Biddle, J. N. DuBarry, J. P. Green, H. H. Houston, N. P. Shortridge, J. P. Wetherill, **Ridgway & Clearfield**—President, J. N. DuBarry; directors, J. P. Green, G. B. Roberts, N. P. Shortridge, Edmund Smith, H. D. Welsh, J. P. Wetherill, **River Front**—President, J. N. DuBarry; directors, G. B. Roberts, Wistar Morris, S. M. Felton, N. P. Shortridge, Edmund Smith, Henry D. Welsh, Frank Thompson, and John P. Green, **Susquehanna & Clearfield**—President, J. N. DuBarry; directors, J. P. Green, Wistar Morris, G. B. Roberts, N. P. Shortridge, J. P. Wetherill, Henry D. Welsh.

**Perkiomen.**—At the annual meeting in Norristown, Pa., Jan. 12, the following were chosen: President, A. H. Seipt; Assistant President and Solicitor, James Boyd; Secretary, Philip Super; Treasurer, Howard Boyd; directors, A. H. Seipt, James Boyd, John Slingluff, Charles F. Wanze, D. M. Casselberry, Jonathan P. Hillegass, George Graber, Noah D. Frank, John S. Rahn, Frank G. Stinson, William H. Seipt and David H. Rudy.

**Philadelphia & Reading.**—At the annual meeting in Philadelphia, Jan. 12, the ticket of the bondholders' committee and the old management was elected without opposition, as follows: President, George deB. Keim; managers, J. B. Lippincott, I. V. Williamson, Franklin A. Comly, Joseph Wharton, John Wanamaker, Robert H. Sayre; Secretary, Albert Foster; Treasurer, William A. Church.

**Philadelphia & Reading Leased Lines.**—At the annual meetings in Philadelphia, Jan. 12, officers were chosen as below for the companies named, whose lines are leased to the Reading: **Allentown**—President, G. A. Nicolls; directors, J. B. Lippincott, I. V. Williamson, George deB. Keim, Joseph Wharton, F. A. Comly, John Wanamaker; Secretary, Howard Hancock; Treasurer, John Welch, **Chester & Delaware River**—President, G. A. Nicolls; directors, J. B. Lippincott, George deB. Keim, Joseph Wharton, F. A. Comly, John Wanamaker, William Ward; Secretary, Howard Hancock; Treasurer, John Welch, **Danville & Shamokin**—President, George deB. Keim; directors, J. B. Lippincott, I. V. Williamson, Joseph Wharton, F. A. Comly, Robert H. Sayre, John Wanamaker; Secretary, Howard Hancock; Treasurer, John Welch, **East Mahanoy**—President, G. A. Nicolls; managers, J. B. Lippincott, I. V. Williamson, Franklin A. Comly, Joseph Wharton, John Wanamaker and George deB. Keim; Secretary, Howard Hancock; Treasurer, John Welch, **East Pennsylvania**—President, G. A. Nicolls; directors, J. B. Lippincott, George deB. Keim, I. V. Williamson, Thomas Hart, Jr., Robert H. Sayre, John H. Hutchinson, Beauveau Borie, George D. Stitzel; Treasurer, John Welch; Secretary, Howard Hancock, **Northeast Pennsylvania**—President, Joshua Comly; Secretary, J. S. Wise; directors, John Jordan, Jr., William C. Ludwig, E. C. Knight, Alfred Hunt, James H. Stevenson, R. J. Dobbins, Charles A. Sparks, Franklin A. Comly, T. P. Stotesbury, G. J. Mitchell, Isaac Warner, Jr., I. Newton Evans, **North Pennsylvania**—President, Franklin A. Comly; Secretary, J. S. Wise; directors, John Jordan, Jr., William C. Ludwig, Edward C. Knight, Alfred Hunt, Ario Pardee, James H. Stevenson, Richard J. Dobbins, Charles A. Sparks, Edwin H. Fitter, Thos. P. Stotesbury, Thos. Cochran, Thos. McKean, **Philadelphia, Germantown & Norristown**—President, William W. Colket; directors, Joseph Patterson, Franklin B. Gowen, E. H. Weil, W. S. Wilson; Lewis Elkin, C. Howard Colket, Thomas B. Townsend, Sergeant Price, Charles

Slifer, William H. Keichline, Samuel Y. Heebner; Secretary and Treasurer, William W. Stevens, **Reading & Columbia**—President, G. A. Nicolls; directors, J. B. Lippincott, George deB. Keim, F. A. Comly, J. N. Hutchinson, T. Baumgardner, Paris Haldeman, I. V. Williamson, Joseph Wharton, John Wanamaker, A. R. Royer, W. L. Small, B. F. Hiestand; Secretary, Howard Hancock; Treasurer, John Welch, **Shamokin, Sunbury & Lewisburg**—President, S. P. Wolverton; directors, A. H. Dill, John C. Smith, H. E. Davis, Levi Rooke, Ira T. Clement, L. H. Kase, John Haas; Treasurer, John Welch; Secretary, Howard Hancock.

**Philadelphia, Wilmington & Baltimore.**—At the annual meeting in Wilmington, Del., Jan. 12, the following directors were chosen: Isaac Hinckley, Samuel M. Felton, William Sellers, Christian Feibiger, B. F. Newcomer, Charles Warner, Skipwith Wilmer, Jacob Tome, G. B. Roberts, Frank Thompson, J. N. DuBarry, Edmund Smith, J. P. Green, Edward Lloyd, Wistar Morris. The board re-elected Isaac Hinckley President; Frank Thompson, Vice-President; Robert Craven, Secretary and Treasurer.

**Pittsburgh, Chartiers & Youghiogheny.**—At the annual meeting in Pittsburgh, Jan. 12, the following were chosen: President, J. E. Schwartz; Directors, Jacob Henrici, Henry Hice, John Rivers, Roger Hartley, B. T. Wilson, Edward Gregg, E. H. Stower, O. P. Scaife, John G. MacConnell, Wm. A. Robinson, Wm. Miller.

**Pittsburgh & Lake Erie.**—At the annual meeting in Philadelphia, Jan. 12, the following were chosen: President, John Newell; directors, David Hostetter, Jacob Henrici, James I. Bennett, M. W. Watson, James M. Bailey, Herbert Dupuy, Ralph Bageley, A. E. W. Painter, James M. Schoonmaker, John Reeves, J. H. Devereux and D. Leet Wilson.

**Pittsburgh, McKeesport & Youghiogheny.**—At the annual meeting in Pittsburgh, Jan. 12, the following were chosen: President, W. C. Quincy; directors, William H. Vanderbilt, Cornelius Vanderbilt, James Tillinghast, J. H. Devereux, John Newell, David Hostetter, James L. Bennett, M. W. Watson, Henry Hice.

**Pittsburgh & Western.**—At the annual meeting in Pittsburgh, Jan. 12, the following were chosen: President, James Callery, Pittsburgh; Vice-President, Solon Humphreys, New York; directors, John W. Chalfant, Wm. Semple, Allegheny, Pa.; W. H. Oliver, Jr., John T. Ferry, New York; John K. Cowan, Robert Garrett, N. S. Hill, Thomas M. King, A. M. Marshall, M. K. Moorhead, Samuel Spencer, Baltimore. The road is controlled by the Baltimore & Ohio.

**Pottsville & Mahanoy.**—At the annual meeting in Pottsville, Pa., Jan. 12, the following officers were chosen: President, Joseph C. Bright; Secretary, Heber S. Thompson; Treasurer, James R. McClure; directors, D. C. Thompson, John Phillips, D. A. Smith, James N. DuBarry, Henry V. Welch, H. P. Thompson.

**Reading & Pottsville.**—At the annual meeting in Pottsville, Pa., Jan. 12, the following were chosen: President, Joseph C. Bright; Secretary, H. S. Thompson; Treasurer, James R. McClure; directors, H. S. Thompson, P. G. Yuengling, Robert Allison, James N. DuBarry, Henry V. Welch and H. S. Thompson.

**Richmond & Danville.**—Mr. F. W. Huidekooper has been chosen First Vice President. He has been connected with the Chicago & Eastern Illinois and other roads.

**St. Louis, Vandalia & Terre Haute.**—At the annual meeting in Greenville, Ill., Jan. 13, the following board of directors was elected: Thomas D. Messler, J. N. McCullough, William Thaw, Pittsburgh; W. R. McKeen, Terre Haute; Robert L. Dulaney, Marshall, Ill.; Abraham McNeil, A. G. Henry, Greenville; Charles H. Seybt, Highland, Ill.; J. S. Peers, Collinsville, Ill. The board organized by electing Thomas D. Messler, President; John E. Davidson, Treasurer; Williamson Plant, Secretary.

**Schuylkill River, East Side.**—At the annual meeting in Philadelphia, Jan. 12, the following were chosen: President, S. P. Wolverton; Secretary, W. A. Church; Treasurer, C. H. Quarles; directors, A. Foster, C. G. Hancock, H. H. O'Brien, W. A. Church, C. H. Quarles, W. H. Brown.

**Terre Haute & Logansport.**—This company (which is controlled by the Terre Haute & Indianapolis Co.) has re-elected Wm. R. McKeen President; George E. Farrington, Secretary and Treasurer.

## PERSONAL.

—Mr. D. H. Houston has resigned his position as Treasurer of the Delaware, Maryland & Virginia Company.

—Mr. C. Berkeley Powell has resigned his position as Master Mechanic of the Maine Line and Cape Cod divisions of the Old Colony Railroad.

—Mr. John B. Jervis, the old and famous engineer, died at his residence in Rome, N. Y., Jan. 12, aged 80 years. An extended notice of his life will be found elsewhere.

—Judge O. A. Lochrane has resigned the position as General Solicitor of Pullman's Palace Car Co., which he has held for several years past. He will leave Chicago for Atlanta, Ga., his former residence.

—Reports are in circulation that Mr. James H. Rutter has resigned his position as President of the New York Central & Hudson River Railroad Co. They are not supported officially and are probably untrue. Mr. Rutter is now taking a month's vacation.

—Mr. F. S. Urie has resigned his position as Superintendent and Treasurer of the Camden, Gloucester & Mount Ephraim road. He was appointed to that position only a few weeks ago, having been previously Superintendent of the Philadelphia & Atlantic City road.

—Mr. A. H. Fauntleroy, Assistant Engineer of the Chicago, Milwaukee & St. Paul road, died in Milwaukee, Wis., Jan. 2. During the war he was connected with the Coast Survey and subsequently served for some years on the Philadelphia & Reading road before going West.

—Mr. Edward T. Low, Assistant General Freight Agent of the New York, Lake Erie & Western Co., died of typhoid fever at his residence in Plainfield, N. J., Jan. 9, aged 44 years. Mr. Low has been connected with the freight department of the Erie road since he was a boy of 17.

—Mr. Frank L. Parker has resigned his position as General Freight & Passenger Agent of the Mexican Central road. Mr. Parker went to Mexico in 1882, leaving the position of Traffic Manager of the Fitchburg road. He was also for a time connected with the Atchison, Topeka & Santa Fe.

—Mr. Thomas Clyde, who died at his residence in Philadelphia, Jan. 12, aged 78 years, was for many years largely interested in steamship lines, and was founder of the well-

known shipping house now known as Wm. P. Clyde & Co. He was for some time owner of the Richmond, York River & Chesapeake road, and was largely interested in other Southern roads.

—Mr. Charles C. Smith has resigned his position as Chief Engineer of the St. Paul, Minneapolis & Manitoba road. Mr. Smith was connected with the St. Paul & Pacific road over 25 years ago, and subsequently held positions on the Lake Shore and the Indiana, Bloomington & Western. Four years ago he returned to Minnesota to accept the position which he has just resigned.

—Mr. C. R. Mason, for many years a railroad contractor, died at his residence near Staunton, Va., Jan. 13, aged 56 years. He was a member of the firms of Mason & Shananahan; Mason, Hoge & Co. and others, and held large contracts on the Valley Railroad, the Cincinnati Southern and many other roads. For some time past he has been lessee of the Kentucky penitentiary.

—Mr. Charles M. Stedman, on assuming office as Lieutenant-Governor of North Carolina last week, resigned the positions which he held in connection with railroad companies. He has been for several years a director and general counsel of the Carolina Central Co. and Attorney of the Wilmington & Weldon Co. Mr. Stedman resigned because he considered that his retention of those offices would be inconsistent with his public position.

—Hon. John S. Barbour, who recently retired from the presidency of the Virginia Midland Co., after many years' service, was handsomely entertained in New York last week by a number of friends and stockholders of the company. He was also presented with a valuable dinner set of silver, in acknowledgment of his services to the company. Mr. Barbour will devote his whole time to his duties in Congress, where he represents the Alexandria District in Virginia.

—In June, 1883, David E. Swan, then a clerk in the Northern Pacific office at St. Paul, was discharged, on the ground that he had revealed to outsiders information which, in the interest of the company, should have been kept secret. He promptly left St. Paul, and soon afterwards it was found that he had taken with him some \$30,000 of the company's money. Ever since then the company's detectives have been looking for him, but without success until a few weeks ago, when it was accidentally discovered that a man residing in the little village of Sutton's Bay, Mich., bore a striking resemblance to the missing clerk. A visit to the place proved that Swan was actually living there under an assumed name, and had attained considerable prominence in the village as an enterprising and public-spirited man. He was arrested and taken back to St. Paul for trial. Swan has felt so safe from detection that he had written several letters to the officers of the Northern Pacific, saying that he was well and prosperous, and defying them to find him.

## TRAFFIC AND EARNINGS.

### Coal.

For the year ending Dec. 31, the anthracite coal tonnage, as given by the weekly reports of the companies, has been, for eight years past:

1884	29,613,800	1880	23,066,111
1883	31,237,154	1879	25,769,385
1882	29,316,387	1878	17,127,681
1881	27,991,164	1877	20,134,730

It will be seen that, notwithstanding the decrease of 1,623,294 tons (5.2 per cent.) from 1883, last year's tonnage still exceeded that of any previous year, or although the increase over 1882 was only 297,473 tons, or 1 per cent.

For the year ending Dec. 31, 1884, the coal carried over the Shamokin Division of the Northern Central road was: Anthracite from collieries, 1,071,825; bituminous east to Mount Carmel, 19,152; bituminous to Shamokin, 2,431; coke east to Mt. Carmel, 55,003; total, 1,148,411 tons.

The coal tonnage of the Pennsylvania Railroad for the week ending Jan. 3 was:

Line of road	Coal.	Coke.	Total.	1884.
From other lines	105,400	37,480	142,880	154,503
	55,233	3,453	58,686	44,856
Total	160,633	40,933	201,566	199,359

Increase for the week, 2,267 tons, or 2.3 per cent.

Negotiations between the Pennsylvania and the Baltimore & Ohio have, it is understood, resulted in an agreement for the maintenance of uniform rates on coal, and for a division of tonnage on bituminous coal carried to tidewater, the Pennsylvania to have 55 and the Baltimore & Ohio 45 per cent., including both Clearfield and Cumberland in the total to be divided. This agreement does not affect the coal carried to interior points.

Coal tonnages for the (short) week ending Jan. 3 are reported as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Anthracite	530,469	315,313	I. 215,156	68.3
Eastern bituminous	94,321	129,478	D. 35,157	27.1
Coke	40,933	53,591	D. 12,658	23.4

The new year opens with a large supply of coal at tidewater and a light demand, largely due to the continued mild weather and consequent light demand for domestic use.

A dispatch from Pittsburgh, Jan. 13, says: "The coke pool entered into by the Pennsylvania, the Baltimore & Ohio and the Pittsburgh, McKeesport & Youghiogheny companies (the latter backed by the Pittsburgh & Lake Erie and the New York, Pennsylvania & Ohio) expired on Wednesday last. Several attempts have been made to reorganize it, but without avail. The Pittsburgh, McKeesport & Youghiogheny has been allowed from 27 to 35 per cent. of the shipments, while its line only touches about 7 per cent. of the ovens. The Pennsylvania and the Baltimore & Ohio are opposed to allowing this percentage. Hence the failure to arrive at an agreement."

Chicago coal receipts for the year ending Dec. 31 are reported by the Coal Trade Journal as below:

	1884.	1883.	Inc. or Dec.	P. c.
Anthracite	1,447,808	1,245,413	I. 202,395	16.3
Eastern bituminous	855,650	845,302	I. 10,348	1.2
Western	1,937,098	1,961,438	D. 24,340	2.7
Coke	553,800	464,520	I. 89,280	19.2
Total	4,794,356	4,516,772	I. 277,584	5.4

The most notable feature is the large increase in coke.

San Francisco coal receipts by sea for the year 1884 were: Pacific coast coals, 566,015; Eastern (anthracite and Cumberland), 36,124; Australian, 159,462; English, 136,440; total, 900,041 tons. In addition, 77,500 tons were received from the Mt. Diablo mines, making the total receipts from all sources 977,541 tons.

Cumberland shipments for the nine days ending Jan. 10 were 50,979 tons, of which the Baltimore & Ohio carried 47,341, and the Pennsylvania Railroad 3,638 tons.

### Fast Stock Trains.

A dispatch from Chicago, Jan. 14, says: "Commissioner J. W. Midgley, of the Southwestern Railway Association, returned to-day from Kansas City, having effected an arrangement for running fast livestock trains between Chicago

and Kansas City. The present time of running is 60 hours, and cattle men claimed that this slow time caused a shrinkage of value in live stock, as well as great suffering among the animals. An arrangement has been made whereby the running time between the two points will be reduced to 41 hours, leaving Kansas City at 3 p. m. and reaching Chicago at 8 a. m. the second morning. Live stock trains between Kansas City and St. Louis will consume but 24 hours in transit.

#### Railroad Earnings.

Earnings of railroad lines for various periods are reported as follows:

Year ending Dec. 31:	1884.	1883.	Inc. or Dec.	P. c.
Bur. C. R. & No.	\$2,796,459	\$2,846,772	D.	1.7
Central Pacific	22,108,134	24,744,424	D.	2,636,290
Ches. & Ohio	3,621,075	3,606,791	D.	285,716
Ches. O. & S. W.	1,376,967	1,322,455	I.	54,542
Chi. & W. Mich.	1,464,838	1,550,098	D.	85,260
Cin. W. & Balt.	1,786,704	1,929,258	D.	148,554
Denver & P. G.	5,918,069	6,821,978	D.	903,969
Eliz. Lex. & B. S.	760,499	713,103	I.	47,396
Ev. & T. Haute.	750,811	732,150	I.	18,661
Flint & Pere M.	2,249,716	2,532,908	D.	303,302
Grand Trunk	16,947,967	16,099,942	D.	2,151,945
G. B. W. & St. P.	324,125	410,622	D.	86,467
Ill. Central	10,506,066	11,039,633	D.	533,627
Iowa lines	1,704,018	2,025,110	D.	321,062
Ind., Bloom. & W.	2,640,938	2,927,531	D.	286,593
Kentucky Cent.	918,747	839,275	I.	79,472
Kansas City, Ft. Scott & Gulf	2,413,013	2,067,870	I.	405,143
Kan. City, Spr. & Mem.	1,235,290	1,235,290		
Louisv. & Nash.	13,649,713	14,170,248	D.	520,535
Mobile & Ohio	2,163,439	2,266,642	D.	103,213
Norfolk & West.	2,097,072	2,812,674	D.	115,602
Peoria, Dec. & E.	701,157	720,882	I.	40,275
St. L. A. & T. H.	1,283,702	1,484,070	D.	201,368
Main Line	740,266	832,467	D.	92,261
St. L. Ft. Scott & Wichita	482,100	286,712	I.	195,388
St. P. & Duluth	1,320,731	1,328,528	D.	7,797
Shenandoah Val.	732,437	854,265	D.	121,828

Eleven months ending Nov. 30:	1884.	1883.	Inc. or Dec.	P. c.
Ches. & Ohio	\$3,229,604	\$3,600,408	D.	\$370,714
Net earnings	971,613	1,258,386	D.	286,773
Ches. O. & S. W.	1,236,367	1,196,244	I.	40,123
Net earnings	301,817	279,852	I.	21,965
Eliz. Lex. & B. S.	697,043	661,573	I.	35,470
Net earnings	237,412	203,372	I.	34,040
Kentucky Cent.	853,377	780,420	I.	74,957
Net earnings	305,355	334,973	D.	29,618
N. Y. L. Erie & Western	18,792,935	22,065,137	D.	3,272,202
Net earnings	4,622,236	7,061,837	D.	2,439,601
Rome, W. & Og.	1,557,588	1,541,501	I.	48,087

Month of November:	1884.	1883.	Inc. or Dec.	P. c.
Ches. & Ohio	\$76,078	\$145,306	D.	\$69,228
Net earnings	78,868	132,060	D.	53,192
Ches. O. & S. W.	138,962	132,812	I.	6,180
Net earnings	54,044	35,304	I.	18,740
Eliz. Lex. & B. S.	71,227	58,051	I.	13,176
Net earnings	28,290	13,359	I.	14,931
Kentucky Cent.	81,965	73,251	I.	8,714
Net earnings	24,168	28,752	D.	4,584
N. Y. L. Erie & Western	1,703,335	2,180,982	D.	477,646
Net earnings	487,825	703,078	D.	215,253
Rome, W. & Og.	155,974	151,460	I.	4,514
Net earnings	68,466	56,362	I.	12,104

Month of December:	1884.	1883.	Inc. or Dec.	P. c.
Bur. C. R. & No.	\$288,452	\$261,208	I.	\$27,244
Central Pacific	1,645,000	1,868,402	D.	223,462
Ches. & Ohio	291,381	306,383	D.	15,002
Ches. O. & S. W.	140,630	126,211	I.	14,419
Chi. & W. Mich.	84,769	110,378	D.	25,609
Cin. W. & Balt.	167,638	154,306	I.	13,332
Denver & P. G.	415,924	494,129	D.	80,195
Eliz. Lex. & B. S.	68,456	51,530	I.	16,926
Ev. & T. Haute.	56,906	61,710	D.	4,804
Flint & Pere M.	171,703	199,666	D.	27,963
Grand Trunk	1,290,407	1,430,172	D.	139,765
G. B. W. & St. P.	26,705	36,127	D.	9,422
Ind., Bloom. & W.	194,918	202,810	D.	7,892
Kentucky Cent.	63,370	58,555	I.	4,815
Kansas City, Ft. Scott & Gulf	215,190	203,298	I.	11,901
Kan. City, Spr. & Mem.	142,137	142,137		
Louisv. & Nash.	1,287,930	1,272,924	I.	15,006
Mem. & Charles.	182,343	150,749	I.	31,594
Mobile & Ohio	285,986	280,246	D.	5,740
Norfolk & West.	233,023	232,752	I.	271
Peoria, Dec. & E.	59,303	62,577	D.	3,274
St. L. A. & T. H.	83,072	126,249	D.	43,177
Main Line	69,691	74,108	D.	4,417
St. L. Ft. Scott & Wichita	36,133	40,279	D.	4,146
St. P. & Duluth	114,610	88,413	I.	26,097
Shenandoah Val.	48,486	62,863	D.	14,377

First week in January:	1885.	1884.	Inc. or Dec.	P. c.
Canadian Pac.	\$91,000	\$90,000	I.	\$1,000
Chi. & Alton	152,261	149,422	I.	2,839
Chi. & East. Ill.	31,621	22,248	I.	9,373
Chi. Mil. & St. P.	306,000	314,062	D.	8,062
Chi. & Norwest.	302,300	275,300	I.	27,000
Chi. St. P. M. & Omaha	68,200	58,100	I.	10,100
Cin. Ind. St. L. & Chicago	41,679	35,301	I.	6,378
Illinois Central	218,800	180,433	I.	38,367
Long Island	40,412	35,153	I.	5,259
Louis. & Nash.	243,855	210,855	I.	33,000
Roeh. & Pitts.	22,502	15,400	I.	7,102
St. L. & San Fran.	63,100	58,300	I.	4,800

Weekly earnings are usually estimated in part, and are subject to correction by later statements.

#### Grain Movement.

San Francisco exports for the six months of the California crop year from July 1 to Dec. 31 were as follows, flour in barrels and wheat in bushels, flour being reduced to wheat in the totals:

	1884.	1883.	Inc. or Dec.	P. c.
Flour	600,003	670,472	D.	70,469
Wheat	13,413,212	12,305,942	I.	1,107,270
Total	16,413,215	15,538,902	I.	874,313

Exports of California barley by sea for the half-year to Dec. 31 were 277,660 cwt., against 122,973 cwt. for the same half of 1883.

#### Cotton.

Cotton movement for the week ending Jan. 9 is reported as follows:

Interior markets:	1885.	1884.	Inc. or Dec.	P. c.
Receipts	53,009	35,505	I.	17,504
Shipments	81,712	53,581	I.	28,131
Stock, Jan. 9	320,785	389,898	D.	69,113
Exports:				
Receipts	133,994	90,245	I.	43,749
Exports	139,130	166,420	D.	27,290
Stock, Jan. 9	979,537	1,190,665	D.	211,128

The total movement from plantations for the cotton year (from Sept. 1) to Jan. 9 is estimated at 4,602,128 bales. The increase as compared with last year is 108,764 bales, the de-

crease from 1882-83 is 166,558 bales, and the increase over 1881-82 is 288,583 bales. The movement continues large.

#### Iowa Rates.

A meeting of General Freight Agents was held at the office of the Central Iowa Traffic Association in Chicago, Jan. 8. It was resolved to restore the rates on hog products from points in Iowa, Minnesota and Dakota to Chicago. Rates on corn were also considered, but no action taken. The reduction in live stock rates made by the Illinois Central was referred to a committee, which is to report at another meeting which is to be held Jan. 19.

#### New Passenger Lines.

A dispatch from Raleigh, N. C., Jan. 10, says: "It is announced by authority that in a few weeks a new train will be put on the Charlotte, Columbia & Augusta, the Atlantic, Tennessee & Ohio, and the Western North Carolina Railroad, to connect at Warm Springs station with the passenger train on the East Tennessee, Virginia & Georgia road for Louisville, Ky., thus opening up a short through route from Charleston to Louisville. Since this route was opened it has done a heavy business in freights, great numbers of live stock from Tennessee and Kentucky being shipped over this line to Charleston. The passenger business has also been greatly increased."

#### Southern Passenger Rates.

The committee of 15 General Passenger Agents, representing Southern lines, met in Louisville, Jan. 8, to consider the present condition of passenger business. A part of the meeting was passed in secret session, in which there was a long discussion of the situation. The meeting resulted in the adoption of a joint agreement to maintain full rates from all Ohio River points to Southern points and to demand a full proportion of through rates from all connecting lines. The agreement is to be prepared and submitted for signature to all the lines in interest. It was also resolved to request the trunk lines to shorten the limit of time on special New Orleans tickets by allowing only five days each way for the trip. It was resolved also to sell special excursion tickets to the inauguration ceremonies at Washington on March 4 at one unlimited fare for the round trip, military companies and other organized bodies to be carried at a rate of 1½ cents per mile for the whole distance traveled.

#### Illinois Freight Rates.

The decision of the Illinois Commissioners, declining to order a general reduction of freight rates, says that they have based this decision upon the fact that very few of the railroads in the state are now paying dividends, and that with the exception of a very few lines none of them would be self-sustaining on Illinois business alone, and that the average rates charged for transportation in Illinois are now as low, or lower than those of any other state. The Commissioners think that the railroads have borne their fair share of the burdens of hard times, so that much of their property is now unproductive. They also say that the petitioners for a reduction have failed to show that it would be beneficial to business at the present time, and for all these reasons they decline to make any general revision of the standard tariffs at the present time. They will, however, be ready to grant further hearings on the question should any one desire it.

#### Cars and Trains for Express Matter in England.

Express companies have never flourished in England and the railroads there have hitherto had a practical monopoly of the conveyance of parcels, and managed the business very badly. Things, however, are improving, as the *Railway Express* states: "A great increase has recently taken place in the small parcels traffic on most of the railway systems, and this has led the London & Northwestern Co. to build several special parcels cars, which resemble in construction the passenger cars recently introduced, having covered connected gangways from one to another. They are open from end to end, have windows full length, and are fitted with racks, pigeon holes for letters and small parcels, and other conveniences. This system is a partial imitation of the government parcels' post, and claims to insure speedier transit, avoidance of risk of loss through transhipping; will relieve the guards and give them more time to look after passengers and their baggage, and also enable them to devote better attention to signals while traveling. The idea of running trains solely devoted to the conveyance of parcels is new, and should it prove to answer after a fair trial will no doubt be adopted by other companies."

#### Pacific Coast Freight Rates.

The lines in the Transcontinental Association have adopted a new tariff based upon the abolition of the contract system, which has been for several years in use on Pacific coast traffic. Under this contract system rates were given to all parties who agreed to ship all Pacific coast freight by rail, with the exception of certain specified articles of heavy freight, much higher rates being charged to those who did not sign such contract. This system, it has always been charged, discriminated against shippers at interior points, such as Chicago, and has always been objected to on this and other grounds. It is now entirely abolished and a new tariff has been issued by the Transcontinental Association, covering all classes of freight and showing a considerable reduction from the old open rate.

Under this new tariff, rates on shipments to Portland and Oregon points when made by way of San Francisco are found by adding the local rate from San Francisco to the through rate to that city, and in the same way the rate on shipments made to San Francisco by way of Portland are found by adding the local rate from Portland to San Francisco to the through rate to Portland.

#### Chicago-Ohio River Pool.

The passenger agents of the Ohio River pool lines met in Chicago, Jan. 8. The chief matter under discussion was as to continuing to allow the Danville route, composed of the Chicago and Eastern Illinois, and the Indiana, Bloomington & Western Roads, the same differential as heretofore, viz., 75 cents to Indianapolis and \$1 to Cincinnati and Louisville. It was decided to continue the differential on the condition that if at the end of any calendar month it should be found that under an absolute maintenance of rates, the Danville route has been able to earn more than its agreed percentage in the pool, the rates shall be readjusted so that it shall earn no more than its agreed percentage.

#### Boston Traffic Notes.

During December, there were hauled East through the Hoosac Tunnel 6,589 loaded freight cars and 165 empty ones, against 6,971 loaded and 173 empty cars in December, 1883, a decrease of 382 loaded and 80 empty cars.

#### New York City Passenger Traffic.

New Yorkers do a good deal of riding in the course of the year. The reports of the city lines for the year ending Sept. 30 last show that there were carried during the year 284,115,862 passengers, of which the elevated roads carried 96,702,820 and the surface horse-car lines 187,413,042. Large as is the business done by the elevated roads, they have left enough for the surface lines to keep them pretty busy, and to give them very comfortable profits, too, for

their dividends vary from 5 to 18 per cent., everyone of the companies having paid some dividend last year.

#### OLD AND NEW ROADS.

**Anglesea.**—This road, which was built last year from Anglesea station on the West Jersey road to Anglesea Beach, N. J., is to be abandoned and the track taken up. The company has been in financial difficulties ever since the road was completed. It is about 4 miles long.

**Baltimore & Ohio.**—The work at Brady's Tunnel on the cross-cut which is to connect the Wheeling, Pittsburgh & Baltimore branch with the main line of the Pittsburgh Division is now nearly finished. This tunnel was the heaviest piece of work on the new line and with its completion the grading will be substantially finished and ready for the rails. This new cross-cut connecting Wheeling with the Pittsburgh Division, will give the company a loop or second line from Wheeling to Cumberland. The line was first projected in 1853, when the road from Wheeling to Washington, Pa., was built, and some work was done on the extension to Monongahela City. It was then suspended, however, until 1873, when it was resumed by the Baltimore & Ohio Co., but again suspended about a year later and not resumed until last year.

**Boston, Revere Beach & Lynn.**—It is said that this company is considering the question of extending its road from Lynn, Mass., to Salem, and thence to Gloucester, with the intention of securing a share of the large passenger business now done between Boston and Gloucester by the Eastern road. The report is, however, contradicted officially. The contract under which the Eastern Railroad Co. paid this company \$500 per month as a condition of its maintaining passenger rates between Boston and Lynn, is continued by the Boston & Maine Co. as lessee of the Eastern.

**Cadillac, Manistee Valley & Lake Michigan.**—This company has been organized at Sherman, Mich., to build a railroad from that place to Cadillac. The towns on the line are asked to subscribe to the stock.

**Chicago, Milwaukee & St. Paul.**—This company has a large exhibit at New Orleans, chiefly of the agricultural products of Dakota, although it includes some good samples from Iowa, Minnesota and Wisconsin. Samples of fruits raised along the line are also shown, and specimens of stone from the quarries at Sioux Falls. The exhibit is very tastefully and attractively arranged and has received much attention.

**Chicago, St. Louis & Western.**—It is reported that the Chicago, Milwaukee & St. Paul Co. is trying to buy a controlling interest in this road, which runs from Chicago to Pekin, Ill. The object of the St. Paul Co., if the reports are true, is probably to secure a supply of coal, as this road runs for the most part through a coal country, while the St. Paul has no coal at all on its eastern lines.

**Connecticut Railroads.**—The report of the Connecticut Railroad Commissioners, as presented to the Legislature, says that the general condition of most of the roads has been decidedly improving during the year. For the first time since 1878 the gross earnings show a falling off from the preceding year, and amount to a little over \$300,000. The freight earnings fall off nearly 6 per cent., while the passenger earnings gain 2½ per cent. To meet the falling off in gross earnings, the operating expenses have been reduced \$373,640. Eleven companies, with over \$30,000,000 capital, declared dividends averaging 8.73 per cent., and 12 other companies, with combined capital of over \$27,000,000, declared no dividends. There are outstanding \$13,500,000 bonds on which interest of \$752,335 is overdue. There are 973 miles of road in the state, all but 63 being laid with steel rails. There were 16,957,574 passengers carried and only one killed.

The report gives a history of the various parallel projects for competing lines between New York and New Haven and New York and Boston. Only the New York & Connecticut Air Line and the Hartford & Harlem companies have now a legal existence in this state. The former has until Oct. 22, 1886, in which to finish its road. The work it has already done is confined to the towns of Greenwich, Westport, Bridgeport, Stratford and Orange, and it is claimed that \$150,700 has been expended, and that the road will be completed by the time limited. The Hartford & Harlem, if it expends its 10 per cent. within the prescribed time, will have until Dec. 30, 1888, in which to finish its construction. Of both roads the Commissioners say: "It is the evident determination of both these companies to keep themselves in fighting and working trim, ready to avail themselves of any advantage which may present itself. At present the depressed condition of business, the ruin which has come upon investors in the stock and bonds of some parallel lines, and the unsatisfactory condition of what were supposed to be sound railroad corporations, forbids any expectation of the immediate construction of either of these proposed roads. As the New York & Boston Inland Railroad Co. did not expend 10 per cent. of its subscribed capital within two years after filing its articles of association, its corporate existence ceased, by provision of the statute, Feb. 4 last, and though the newspapers recently have given accounts of reorganization and of its future plans, yet, as no new articles of association have been filed in the office of the Secretary of State, it has no legal standing in this state." Concerning the New York & New England road, as operated the past year by Charles P. Clark, Receiver, the Commissioners say they are glad to report that its business has been so conducted that the complaints in regard to its management so frequently made in former years have entirely ceased.

Considerable space is given in the report to the matter of running trains on Sunday, which was taken up by the body of Congregational ministers and laymen in the State and presented by a committee of clergymen to the Commissioners, who were asked not to stop Sunday travel, but to recommend to the Legislature such legislation as would reasonably regulate the running of trains. The report calls attention to the Massachusetts law of 1881, giving the Commissioners authority to permit the running of such through trains as the public necessity and convenience may require, and leave the whole subject with the Legislature for further consideration.

**Delaware & Hudson Canal Co.**—It is reported that this company will build a new line from Scranton, Pa., northward to Lanesboro, to connect its Pennsylvania line with the Albany & Susquehanna road by a road entirely under its own control. The new line would enable the company to dispense with the system of gravity roads, which it now uses for transporting coal, and also with the use of the Jefferson Branch of the Erie, over which its north-bound coal now passes.

**East Tennessee, Virginia & Georgia.**—In Atlanta, Ga., Jan. 8, an application was made by the holders of first-mortgage bonds on the Georgia Division for the appointment of separate receivers for the road in that state. A number of creditors holding unsecured claims joined in the application, which was granted by the Court, and R. T. Dorsey and E. F. Alexander appointed receivers for all the

property of the company in Georgia. Officers of the company in New York say that the application has been made by a few small holders of bonds, and will be withdrawn on the payment of the overdue interest. The company has nearly 450 miles of road in Georgia, including the important line from Chattanooga to Atlanta and Macon.

**Georgia Associated Traffic Lines.**—The Atlanta Constitution, of Jan. 12, says: "To-day the Constitution is able to give its readers the information of the largest railway and steamship consolidation which exists in the Southern states, and which has but three or four rivals in amount of mileage anywhere in this country."

"On Dec. 7, Senator Brown, President of the Western & Atlantic, Capt. Raoul, President of the Central Railroad of Georgia and the lines controlled by it, Major John W. Green, General Manager of the Georgia Railroad and branch lines, with the general freight and passenger agents of their respective lines, met at Senator Brown's office at Atlanta and perfected the organization above referred to."

"It was determined not to promulgate the information to the public however, until the general matters of detail had been worked up, so as to enable everything to be systematically perfected before notice of the organization was given."

"On last Wednesday, Mr. Joseph M. Brown, General Freight and Passenger Agent of the Western & Atlantic, Colonel E. R. Dorsey, General Freight and Passenger Agent of the Georgia Railroad, Major G. A. Whitehead, General Freight and Passenger Agent of the Central Railroad, Colonel S. B. Pickens, General Freight Agent of the South Carolina Railway, Mr. E. T. Charlton, General Freight and Passenger Agent of the Port Royal and Augusta, and others interested met in Augusta and perfected the arrangements which were until then incomplete, and prepared a prospectus to the public, announcing the organization of the Georgia Associated Traffic Lines, under which name the new consolidation will be known."

"The Western & Atlantic Railroad between Chattanooga and Atlanta is the system's connecting link with the great West, and over which all west-bound freights will be forwarded, and all south-bound freights will be solicited into the common territory by the general agents. The Georgia Railroad, the South Carolina Railway and the Port Royal & Augusta are the lines over which freights will be solicited to the Carolina coast points. The Central Railroad is the highway to Savannah, and, via the Central Railroad and the Brunswick & Western, access is gained to Brunswick. The Atlanta & West Point Railroad is the system's south-west arm."

"In addition to these, are the railroads in Alabama controlled by the Georgia Central, and the branch lines and steamboat lines on the Georgia rivers for which this system is the only outlet. The Ocean Steamship Co. and the other lines owned or controlled by roads in this combination connect it with Boston, New York, Philadelphia and Baltimore at the various ports."

"The total railroad mileage is nearly 2,600 miles, and the water mileage amounts to over 2,000 miles, showing a grand total of nearly 5,000 miles, which have combined interests and agreed upon steps for mutual protection, or, if necessary, aggression."

**Grand Trunk.**—This company's statement for November and the five months from July 1 to Nov. 30 is as follows:

	November.	Five months.
	1884.	1883.
Earnings	\$249,142	\$280,206
Expenses	224,372	238,265
Net earnings	\$24,770	\$121,941

The decrease in gross earnings for the five months for 1884, or 11.1 per cent.; in net earnings, \$152,931, or 26.1 per cent.

The earnings of the controlled lines west of Detroit for the five months were:

	Chl. & G. T.	Det. G. H. & M.
	1884.	1883.
Earnings	\$277,503	\$270,907
Expenses	205,401	198,585
Net earnings	\$72,102	\$72,322

The Chicago & Grand Trunk shows an increase in gross earnings of \$6,596, or 2.4 per cent., but a decrease in net earnings of \$220, or 0.3 per cent. The Detroit, Grand Haven & Milwaukee had a decrease in gross earnings of \$9,506, or 7.3 per cent., and in net earnings of \$4,366, or 10.2 per cent.

**Houston & Texas Central.**—A meeting of holders of first-mortgage bonds was held in New York Jan. 10, at which there was a long discussion on the action of the company in permitting the January coupons to be purchased by the Southern Development Co. It was claimed that by selling their coupons bondholders surrendered their first lien on the property to the Development Co. A committee was appointed to investigate the affairs of the company and report at an adjourned meeting.

**Illinois Central.**—The following is a comparison of gross earnings from traffic in 1883 and 1884 (11 months actual, December, 1884, estimated):

Lines owned.	Miles.	1884.	1883.	Decrease.	P. C.
In Illinois	656	\$6,187,788	\$6,674,703	\$486,915	7.3
Southern Div.	578	4,318,218	4,364,930	46,712	1.7
Tot. lines owned	1,234	\$10,506,006	\$11,039,633	\$533,627	4.8
Leased in Iowa.					
Dub. & Sioux C.	143	916,155	1,063,908	177,753	16.2
La. Falls & S. C.	184	663,977	799,238	135,261	16.9
Ced. F. & Minn.	75	123,916	131,964	8,048	6.1
Tot. lines in Ia.	402	\$1,704,048	\$2,025,110	\$321,062	15.9
Total all lines	1,636	\$12,210,054	\$13,064,743	\$854,689	6.5

The Southern Division earnings in 1884 include \$124,000 earned (mainly in November and December) on the Canton, Aberdeen & Nashville, and the Yazoo & Mississippi Valley roads, 133 miles, which are not included in the above 578 miles.

**James River Valley.**—It is stated that this unfinished road has been sold to Messrs. Livingston & Merriam, of St. Paul, who are said to be acting in the interest of the Rock Island road. The purchasers agree to complete the road, which is to run from Jamestown, Dak., on the Northern Pacific, southward through the James River Valley, and will probably have its terminus at Watertown.

**Kansas City & Southern.**—The crossing of this road over the Missouri, Kansas & Texas at Clinton, Mo., has been put in, the trouble between the two companies having been adjusted. The road-bed is graded for 13 miles northward from Clinton, and track will now be laid on this section as rapidly as possible. From Clinton southward the road has been for some time in operation for 18 miles.

**Lake Shore & Michigan Southern.**—A fire broke out on the night of Jan. 9 in the machine shop at Collingwood, near Cleveland, and the machine shop was entirely destroyed, the round-house being badly damaged. The loss is estimated at \$40,000.

**Lehigh Valley.**—The Buffalo Express says: "The last rail on the new city line of the Lehigh Valley Railroad will be laid in a few days. Their eastern connection with the Erie is near the Lackawanna yards just outside the city. Nearly the whole of the tracks are elevated above the grade of the numerous roads they have to cross, and everything has been arranged so that the vexatious stoppages that surface roads are subjected to in that locality are avoided. There will not be any particular change in the running of Lehigh trains for the present, as the connections with the Tift Farm by means of the Buffalo Creek road have not been put in yet, though the new retail coal trestle at Louisiana street will probably be supplied over the new line. There seems to be no definite plan as to the passenger depot to be built on the square west of Michigan street. It may be put up next summer and it may not. Beyond the fact that it is expected to front on Michigan street there is little known. The freight accommodations are sufficient for the present, so that no change needs to be made in the buildings near Washington street."

**Long Island.**—The latest of Mr. Corbin's projects in connection with this road is for a tunnel to extend from the present terminus at Long Island City under the East River and under a portion of New York city to the Grand Central Depot, where connection will be made with the New York Central & Hudson River road. It is said that the New York Central will assist in building the tunnel in the hope of securing some of the heavy freight from the large sugar refineries and other factories in Brooklyn. The point designated for the crossing under the East River by the tunnel is a little above Hunter's Point and under the lower end of Blackwell's Island, but no definite location has yet been made. The river bottom at that point is almost entirely of rock.

This company is trying an experiment on the western end of its line, where there are many farmers and market gardeners who have been in the habit of sending their products to the New York markets by wagon, largely because of the injury which would be done by transshipment if it were sent by rail. Special trains are run on agreed nights, with flat cars for the wagons, stock cars for the horses and a passenger car for the men. The wagons and horses are put on the cars and carried to Hunter's Point, where they are unloaded and are at once ready to drive to the market. If the plan be successful, the farmers will save much time, while the road will secure a traffic worth having.

**Louisville, Evansville & St. Louis.**—The bondholders of this company held a meeting in Boston, Jan. 12, and appointed a committee of three to represent their interest. This committee is to be increased by representatives of the Western bondholders, should they desire to act in concert with the Boston people.

**Louisville & Nashville.**—The freight station of this company in Nashville, Tenn., was destroyed by fire on the night of Jan. 10, with 14 cars and a large quantity of freight. The loss is estimated at \$120,000, on which there is no insurance.

It is understood that ex-President Baldwin has made a surrender of his entire property for the purpose of satisfying the claim of the company against him. It is expected that with proper care this property will finally realize between \$800,000 and \$900,000, although it may take some time to do it.

**Louisville, New Orleans & Texas.**—A branch line has been completed by this company, leaving its main line at a point south of Leland, Miss., and running westward to Greenville on the Mississippi River, a distance of 12 miles. About 5 miles of this track have been laid this year. This branch is expected to bring considerable local traffic to the road, as it passes through a very rich cotton country.

Work is now well advanced on the branch line running to the Mississippi opposite Arkansas City, and it is expected that this branch will be opened early next month, connecting with the Little Rock, Mississippi River & Texas road at Arkansas City. The transfer boat to be used on the river at this point is completed.

The contract for tunneling the hill south of Vicksburg, Miss., which was originally let to Gorman, Wilson & Lewis, has been re-let to J. P. McDonald, who will begin work at once. The tunnel will require the removal of about 10,000 cubic yards of earth, and the approaches about 50,000 yards more. The building of the tunnel has been made necessary by the encroachments of the river upon the original road-bed.

**Ishpeming, L'Anse & Ontonagon.**—The Detroit Free Press of Jan. 11 says: "A company of Michigan men has been organized, and articles of association were filed Saturday under the name of the Ishpeming, L'Anse & Ontonagon Railroad Co., having for its object the construction of a railroad from L'Anse to Ontonagon, provided the grant of lands for the construction of such road can be obtained. These lands were granted to the Houghton & Ontonagon Railroad Co., conditioned upon the building of a road between L'Anse and Ontonagon. This has not been done, and the grant has lapsed. The Houghton & Ontonagon people may apply to the Legislature for an extension of time, but the fact that they have done nothing toward earning the lands will operate against them. A company of Illinois men are in the field with a view of securing the grant from the Michigan Legislature. If built under their auspices the road would naturally be in the interest of roads in Illinois. The Michigan company, just organized, is largely composed of the men who pushed to a successful completion the Detroit, Mackinac & Marquette Railroad."

**Massachusetts Railroads.**—The report of the Massachusetts Railroad Commission for the year ending Sept. 30, 1884, contains returns from 63 corporations. The total railroad mileage of the State is 2,851.74 miles, of which 941.63 miles are double track. New road reported for the year includes three lines: Providence, Webster & Springfield, 10.14; Nantucket, 6; Boston, Winthrop & Shore, 5.55; total, 21.69 miles. A re-measuring on two roads showed 1.24 miles less than previously reported, leaving a net increase of 20.45 miles.

The total capital stock reported at the close of the year was \$127,668,390; the net debt, \$74,439,473.

On all these roads trains were run 32,304,333 miles, the average cost per train mile being 89.5 cents. On these trains 66,517,265 passengers were carried, 1,007,136,376 miles, and 20,273,920 tons of freight were moved, 1,229,368,472 miles. The largely local character of the business is shown by the fact that, notwithstanding the heavy through business done by some of the roads, the average passenger journey last year was only 15.29 miles, and the average freight haul 60.61 miles.

The total income of the corporations for four years past, with the per cent. of net earnings to the investment, has been:

	Gross.	Net.	Per cent.
1880-81	\$37,764,396	\$10,701,752	5.0
1881-82	40,846,370	10,902,203	5.5
1882-83	43,380,368	10,900,480	5.4
1883-84	43,118,303	11,048,618	5.2

Rents are included in expenses. The net income last year

was distributed as follows: 13 companies had no net income; 12 had net income less than 3½ per cent. on their total permanent investment; 15 had 3½ to 5½ per cent.; 12 had 5½ to 7½; 6 had 7½ to 9½, and 2 companies had 9½ to 12½ per cent. The Troy & Greenfield (owned by the state) is not included.

The average gross earnings were \$11,064 per mile of road; expenses (including rents) \$8,062, leaving the net earnings \$3,002 per mile.

The total amount of dividends paid was \$6,535,055, being 5.12 per cent. on the total stock. Of the 63 corporations, 30 paid no dividends, and the remaining 33 paid dividends varying from 2 to 10 per cent.

In the operation of these roads, 1,391 locomotives, 1,948 passenger cars, 525 mail and baggage cars and 29,701 freight cars were used. The average number of persons employed during the year was 30,590, being 10.73 persons per mile of road.

Besides the steam railroads there were 33 street railroads having 309.50 miles of track, and employing in their operations 3,846 men, 8,996 horses, 1,921 cars and 178 other vehicles.

**Memphis & Charleston.**—It is reported that steps are to be taken to set aside the lease of this road to the East Tennessee, Virginia & Georgia. The lease was made in 1877 and was for 20 years, one section providing that it could be terminated on six months' notice. In an amendment to the lease the right to discontinue or annul on six months' notice was retained by the East Tennessee and taken from the Memphis & Charleston. The consideration was that the East Tennessee should assume Memphis & Charleston's floating debt. This was not done, and it was understood that Memphis & Charleston could still annul the lease on six months' notice. Last summer, it is stated, Gen. Thomas offered to pay to the East Tennessee individually all the floating debt of the Memphis & Charleston due the East Tennessee, which was accepted. Gen. Thomas now owns the majority of Memphis & Charleston stock, and thus entirely controls the road.

**Mexican Central.**—The subscription for the new 10 per cent. 10 year bonds has been closed, 2,500 blocks having been taken on the terms offered in the company's circular. As the blocks were offered at \$900 each, this will give the company \$2,250,000 in cash, which will be sufficient to retire the coupon notes falling due next month, pay off the floating debt and leave about \$100,000 in the treasury. The indebtedness of the company is thus entirely funded.

**Mexican Railroad Notes.**—The following notes are from the Mexican Financier of Dec. 26:

On Dec. 24 the bridge of the Mex. Central Railroad over the Churubusco River was inaugurated.

Work on the railroad from the port of Mazatlan to Rosario will soon be commenced.

The Mexican Central will sell tickets at a rebate of 40 per cent. for the exposition at Leon, which takes place next month.

Mr. James Campbell has been appointed Superintendent of the construction company organized to build the Topolobampo road.

General Manager Robinson of the Mexican Central arrived here yesterday with Mr. Barlow, the new Traffic Manager. The auditing and cash departments of the railroad will be combined after Jan. 1, under the supervision of Foster Nichols, Assistant Treasurer.

**Michigan Central.**—The Union Bridge Co., of Buffalo, by George S. Field, Engineer, has just submitted the following report to Chief Engineer J. D. Hawks, of the Michigan Central:

"We have just finished a very careful inspection of the Cantilever Bridge over the Niagara River."

"We examined every rod, section, joint, anchorage and expansion point, and found that nothing needed adjustment or repairs. We tried the line over the top, using the old original center tracks, and found the line perfect, showing that foundations and piers are just as when first finished, and the lateral adjustment has not changed. When the length was taken for the centre span the thermometer stood at 60 degrees. When we (one year later) took the measure, it stood at zero."

"We find the suspension pins one inch from the centre of the expansion slots, showing there had not been the slightest movement of any part of the structure, except that due to temperature."

**Mobile & West Alabama.**—This company has been organized to build a railroad from Mobile northward to the Tennessee state line, the general route being parallel with the Mobile & Ohio, but some 50 miles to the eastward of that line.

**Montreal, Portland & Boston.**—A meeting of the stockholders of this company has been called by two of the directors for the purpose of choosing a new board; the officers of the company having failed to call a meeting at the regular time. The road is at present operated by the Canadian Pacific Co., but a majority of the bonds are held by the insolvent Vermont Bank at St. Albans, and there is some doubt about the right by which the Canadian Pacific holds possession.

**New Jersey Railroad Taxation.**—In his message to the New Jersey Legislature, Governor Abbott treats at length of the taxation of railroad companies, which has been so prominent a question in that state for the past two or three years. The Governor's principal suggestion is that the Legislature should add to the act of last year a provision that no foreign corporation should exercise any powers in the state unless it files an agreement that all its property in the state should be subjected to the same taxation as that of a domestic corporation. The Governor treats at particular length of the objection made by some of the roads to the franchise tax, and urges that the franchise is a real and valuable property having in most cases large value, and in equity should be subjected to taxation. He insists that the railroad companies generally are less burdened than individual taxpayers. He suggests that, should the companies acting under the older charters continue to urge that they have irrevocable contracts with the state exempting them from taxation, the state should take advantage of the provision contained in most of those charters, authorizing it to purchase the property of the company at its first cost, at the expiration of 50 years from the date of the original charter.

**New York & Boston Inland.**—The Boston Advertiser of Jan. 12 says: "Saturday a large number of men and teams were put at work grading for the New York & Boston Inland Railroad at East Medway and Sherborn. The commissioners of Norfolk and Middlesex counties have established the crossings. The sum of \$50,000 must be spent in actual construction by next Saturday in order to save the charter. Probably this object will be accomplished if the accounts are not too carefully audited, and probably the work will then cease until the company gets more completely ready to resume it."

**New York Central & Hudson River.**—The Court, after hearing arguments, has refused to grant the injunction.

tion asked for to restrain this company from paying a dividend. The Court held that plaintiff had not established his case and that it appeared that the company had sufficient funds on hand for its payment.

**New York, Lake Erie & Western.**—The committee representing the holders of certificates of the Car Trust of New York, report that they have declined to negotiate with the Erie Co. on any other basis than 6 per cent. interest and full payments on the principal, although they have been willing to make some concession on the time for annual payments. They state that while they are still endeavoring to reach a friendly settlement, they expect to find it necessary to resort to legal measures to establish the right of the certificate holders. The holders are asked to contribute an assessment of \$1 per \$1,000 to meet necessary legal expenses. No action will be taken until after Feb. 1, when the interest payments will be 30 days in default.

Default was made Jan. 1 on the interest then due on the \$1,500,000 first mortgage bonds of the Buffalo & Southwestern road, which is leased to this company. By the terms of the lease the rental was to be 35 per cent. of the gross earnings of the road, the Erie guaranteeing a sufficient amount to pay interest on the bonds. No statement has been published of the earnings last year; but in the previous year the rental was sufficient to pay not only the interest on the bonds but a small dividend on the stock.

This company's statement for November and the two months of the fiscal year from Oct. 1 to Nov. 30 is as follows, the figures including 68 per cent. of the gross earnings and all the working expenses of the leased New York, Pennsylvania & Ohio road:

	November.	Two months.	November.	Two months.
1884.	1883.	1884.	1883.	1883.
Earnings.....	\$1,703,338	\$2,189,982	\$3,571,195	\$4,592,128
Expenses.....	1,215,513	1,477,904	2,455,528	3,045,682

Net earnings... \$487,825 \$703,078 \$1,115,667 \$1,546,446

The decrease in gross earnings for the two months was \$1,020,933, or 22.2 per cent.; in net earnings, \$430,779, or 27.9 per cent.

For the same periods the earnings of the Erie lines, excluding all earnings and expenses of the New York, Pennsylvania & Ohio were:

	November.	Two months.	November.	Two months.
1884.	1883.	1884.	1883.	1883.
Earnings.....	\$1,371,519	\$1,776,172	\$2,882,677	\$3,759,640
Expenses.....	919,281	1,057,615	1,851,778	2,253,959

Net earnings... \$452,238 \$718,557 \$1,030,899 \$1,505,681

The two months show a decrease of \$876,963, or 23.3 per cent. in gross earnings, and of \$474,782, or 31.5 per cent. in net earnings. From these statements it appears that the 68 per cent. of the gross earnings of the leased line this year amounted to \$688,518, and its working expenses to \$603,750, showing a profit on the lease of \$84,768 for the two months.

**New York, West Shore & Buffalo.**—A circular issued by General Passenger Agent Henry Monett makes the following claims for this road:

"Notwithstanding all the difficulties surrounding the operations of a new road, the gross passenger earnings of the West Shore between New York and Buffalo, for the year ending Dec. 31, 1884, were in excess of \$1,500,000. In considering this exhibit, the same allowance for the general depression in 1884 should be conceded the West Shore that has been allowed its competitors, and, moreover, it should be borne in mind that the West Shore was opened to Buffalo on Jan. 1, 1884, with all the rawness characteristic of new lines, especially on the Buffalo Division, where, for several months, but one local and one through train was run, retarding the growth of both local and through business.

"During the year the Receivers completed the double track through the Mohawk Valley, finished many of the stations and improved and increased the facilities all along the line. Keeping these facts in mind, and considering further that the passenger train mileage of the Central was more than double that of the West Shore, and that the road mileage of the former is double that of the latter, it is surprising that the West Shore should have shown a gross earning capacity of \$1 for every \$5 earned by the Central, with the latter's old organization, perfected facilities and established connections. Reducing the train and road mileage of the Central to the basis of the West Shore, treating mile and mile alike for the purposes of comparison, the results show that the passenger earnings of the Central, for the same road and train mileage, were not greatly in excess of the West Shore during the first year of the latter's existence. A comparison with the gross earnings per mile of the Erie system will reveal the fact that they were exceeded by the West Shore's passenger earnings per mile for the period under consideration. The record for the year also demonstrates that the average time made by local and express trains on the West Shore compared favorably with that of old established trunk lines, and that accidents were less frequent than on many of the old roads of equal length and moving the same number of trains.

"This relatively good showing is due to the public recognition of the superior construction, equipment, and general management of the West Shore, and forecasts a prosperous future for this already popular passenger route."

The United States Trust Co., as trustee under the first mortgage, has given formal notice to the company that the principal of the bonds is due under the terms of the mortgage, on account of the default in interest payment. The trustees, it is stated, will ask the Court for leave to begin foreclosure proceedings. No plan of reorganization has yet been agreed upon, the chief difficulty being the adjustment of the proportionate rights of the stockholders of the North River Construction Co. A plan which has been mentioned with some favor provides for the conversion of the present first-mortgage bonds into income bonds, or preferred stock, and the issue of new mortgage bonds to an amount sufficient to pay off the floating debt, the Receiver's liabilities, make the necessary improvements in the road, and pay for the terminal property. It is, however, uncertain whether this plan will be adopted or not, although something like it will probably be the result.

**Northern Central.**—The loan known as the second mortgage, which is now a first lien upon the property, subject only to the mortgage to the state of Maryland, will mature July 1, 1885. The holders of the bonds will be given the option of receiving payment in cash or exchanging their bonds at par for 4½ per cent. consolidated bonds having 40 years to run.

**Northern (New Hampshire).**—The stockholders of this company who made application to the directors for a division of the surplus, will present a petition to the New Hampshire Supreme Court to accomplish their object, as the directors have taken no action upon the petition.

**Oregon Railway & Navigation Co.**—The heavy snow blockade on this company's road near Portland, Or., was finally broken up Jan. 8, after continuing for 23 days, and Northern Pacific trains on that date began to run through to Portland. There is still trouble with snow on the

Baker City Branch and the Oregon Short Line, so that the connection with the Union Pacific at Portland is not yet reopened.

**Ogdensburg & Lake Champlain.**—This company makes the following statement for the eight months of its fiscal year from April 1 to Nov. 30:

	1884.	1883.	Inc. or Dec.	P. C.
Earnings.....	\$440,800	\$479,637	D. \$38,837	8.1
Expenses.....	267,167	345,725	D. 78,558	22.7

Net earnings... \$173,633 \$133,912 I. \$39,721 29.6

There was an increase in through freight received at Ogdensburg by lake, but a decrease in local freight traffic, chiefly in lumber and iron ore.

**Ohio Valley.**—The *Wheeling Intelligencer* reports that this road, which is now under construction on the west side of the Ohio, from Bellaire, O., to Marietta, has been sold to the Baltimore & Ohio Co., and that that company will complete the road, thereby securing an additional connection between its Chicago and Cincinnati lines.

**Oregon & California.**—The *Commercial and Financial Chronicle* says: "The Farmers' Loan & Trust Co., which is trustee of the first mortgage of the Oregon & California Railroad, has not received official notice of default on the interest due Jan. 1. Kiernan's Agency says a majority of the last coupons were paid in London, and there is a possibility of the coupons defaulted having been bought there. Until the trust company is officially notified of the default it can take no action."

**Pennsylvania.**—This company, it is stated, will probably build a branch from its new Reading line, leaving that line at Willow Creek, in Berks County, Pa., and running nearly parallel with the East Pennsylvania road to a junction with the Lehigh Valley near Allentown. This would indicate that the company intends to build its Reading line through to Harrisburg, and thus secure a second line between Harrisburg and New York.

**Philadelphia & Reading.**—At the annual meeting on Monday the managers nominated by the bondholders' committee and the old board were elected without opposition, although some had been expected. Out of about 222,000 shares voted on, Mr. Gowen held proxies for 188,000. The Vanderbilt stock was not voted, although a representative was present; probably it would have been used had there been any contest.

At the meeting the plan of reorganization or adjustment prepared by the committee, of which a summary is given below, was presented. This plan, it is understood, is substantially Mr. Gowen's plan and was supported by him in a long speech. He scouted the idea that the corporation was bankrupt, but failed to answer one or two somewhat inconvenient questions put to him by the stockholders. The meeting resolved unanimously to refer the plan to the new board of managers.

A resolution was also passed ordering the appointment of a committee of seven stock-holders not connected in any way with the government of the company, for the purpose of examining into the affairs of the company, ascertaining its liabilities and assets, and appraising all the real estate and other property owned or operated by the company. The committee is to present its report either in pamphlet form or at a meeting to be held upon 30 days' notice.

The report of the bondholders' committee says: "The present net fixed charges of the company are, in round numbers, \$16,650,000, while the earnings of the past fiscal year (after deducting revenues from securities of the company and its leased lines, the interest on dividends on which are deducted from the above net fixed charges) are, in round numbers, \$12,900,000.

"The objects sought to be accomplished by the committee are:

"1. To reduce fixed charges to the limits of last year's earnings.

"2. To preserve the proper order of priorities of each class of security which are converted into income obligations, so that no income applicable to any senior security that remains unpaid can by any possibility be diverted to pay the interest on a junior security.

"3. To provide a method of paying the floating debt."

The committee recommends the payment in cash of the following interest, rentals and guarantees as named, the aggregate of which will constitute the fixed charges of the company, viz:

On mortgage loans prior to consolidated mortgage, in full. On consolidated mortgage, in full, all sinking funds suspended. On improvement mortgage, in full, all sinking funds suspended. On real estate obligations in full. On car trusts in full. On general mortgage scrip and Perkiomen scrip, in full. One-half coupon of general mortgage for three years.

To condense the remainder of the report, it recommends the payment in full of interest on a few of the mortgages on the more profitable coal land, and a reduction of the interest on the others to 6, 5, or 4 per cent., according to their class; holders to be given Reading stock at par to an amount estimated to be equivalent to the loss of interest. For the railroad leases the committee recommends the payment in full where the lines have earned the rental, with the reduction on other lines to an amount covered by the earnings of those lines. On the canal leases a reduction is recommended, and also on the guaranteed bonds of the Philadelphia, Newtown & New York road. With reference to the New Jersey Central lease, the committee recommends such a modification of the lease as will limit the dividends paid on the stock to the amount earned by the road, including the probable allowance for terminal charges.

As to the bonds of the company, it is recommended that one-half the interest on the general mortgage bonds for three years be paid in scrip bearing no interest, but redeemable out of first surplus earnings. The income bonds, adjustment scrip, consolidated mortgage bonds, convertible and debenture bonds to be converted into income bonds to receive interest only when earned.

The report says, in conclusion: "With reference to the floating debt, and to the method of paying it, the committee has examined, as fully as was possible within the limited time it had to devote to the subject, a list of the securities and assets of the company available for the purpose of raising money, and have received and considered several plans for accomplishing this object; but, in view of the fact that the obligations of the company cannot command a proper price so long as fixed charges are in excess of its earning power, the committee is of opinion that any effort to raise money for the extinction of the floating debt should be postponed until it is ascertained whether the creditors of the company will, by accepting the recommendations of the committee with reference to their several securities, agree to aid in restoring the company to credit. If then, it should be found that, with the securities and assets at its command, the company can not obtain the money for the purpose of retiring the floating debt, it must be evident that the duty of providing the funds must devolve upon the junior security holders, the floating debt holders, the stockholders and the deferred income bondholders, all of whose securities are necessarily in jeopardy so long as the floating debt remains unpaid.

"In conclusion, the committee recommends that there shall be an absolute separation of the moneys applicable to capital and income respectively, and that no money arising from income shall be diverted to any capital account or used for any other purpose than the payment of working expenses, renewals, fixed charges or income obligations, so long as there are any yearly income charges unpaid or unprovided for."

**Pittsburgh, Fort Wayne & Chicago.**—A strike occurred on the Western Division of this road at Fort Wayne, Ind., Jan. 13, in consequence of a change in the manner of running freight trains, by which the services of a number of trainmen were dispensed with. Freight trains were stopped and not permitted to proceed. Most of the disturbance was made by the discharged men, although the men upon the trains seem to have sympathized with them, at least to the extent of not resisting their action.

Although the first dispatches indicated that the trouble was made by the discharged men, it appeared later that all the freight trainmen had joined in the strike. The grievance was the running of double-header trains with two engines, thus dispensing with the services of one conductor and one or two brakemen on each train.

At latest accounts a conference between the Superintendent and the men had failed to result in anything, and the strike still continued, both parties being apparently determined to hold out.

**Rome, Watertown & Ogdensburg.**—In the suit brought by the Attorney General of New York, the Supreme Court has granted a writ of *mandamus*, compelling the defendant company to show cause why it should not comply with the recommendation of the Railroad Commission and re-open the abandoned branch between Sandy Creek, N. Y., and Pulaski. The company estimates the cost of rebuilding this branch at about \$70,000, and the yearly cost of operating and maintaining it at about \$15,000. The branch was originally built with bonds voted by the town.

The earnings, expenses, etc., for November, and for two months of the fiscal year from Oct. 1 were as follows:

	November.	Two months.	November.	Two months.
1884.	1883.	1884.	1883.	1883.
Gross earnings.....	\$155,974	\$151,460	\$331,596	\$319,213
Operating expenses.....	87,508	95,008	184,851	187,588

Net earnings... \$68,466 \$56,362 \$146,745 \$131,625

Add rents..... 490 714 1,133 1,276

Total..... \$68,956 \$57,076 \$147,878 \$132,901

Taxes for the two months this year were \$15,637, leaving a balance of \$116,605 as net income.

**Rutland.**—The directors of this company have decided not to declare the semi-annual dividend of 1 per cent., which was expected. The reason given is somewhat peculiar. It is stated that some \$10,000 of the old 8 per cent. bonds have been presented for payment, which it was supposed had been paid and canceled by the former managers of the company.

**St. Louis, Hannibal & Keokuk.**—The report of E. C. Case, Receiver for the time of the receivership, Feb. 7 to Dec. 31, 1884, shows that the road has increased its traffic somewhat, but not to a very great extent. The certificate account shows that \$170,000 of the \$200,000 authorized have been issued, and \$167,788 expended, leaving a balance of \$2,212. This expenditure has been for four locomotives, sundry other rolling stock, and the laying of 6.13 miles of new rails and 6 miles of sidings. The operating account shows receipts (freight, passenger and miscellaneous account) and cash on hand Feb. 7, \$89,352; disbursements, \$88,036; leaving a balance of \$1,316. The Receiver says the gross receipts from freight, passenger, etc., accounts have been barely sufficient to pay operating expenses. The repairs and improvements contemplated have been nearly completed with the money obtained from the issue of certificates, and he thinks when this work is finished, by reason of the increase of facilities the road would be enabled to earn sufficient to pay the interest on the certificates, and possibly establish a sinking fund for their retirement.

**Toledo, Cincinnati & St. Louis.**—By order of the courts, the Receiver has withdrawn all trains from this road between Toledo and Frankfort, Ind., 207 miles, with the exception of one mixed train each way daily. Two reasons are given for this action: one, that, while the road has been doing a large business, it has been chiefly done at such low rates as not to pay working expenses; the other reason is that a large part of the rolling stock has been withdrawn by the car trust companies which owned it on account of non-payment of installments due, leaving barely equipment enough to run the single train. All the minor stations will be made signal stations, the agents being withdrawn. The road has been carrying a good deal of St. Louis business, but now abandons the competition for through traffic.

**Union Pacific.**—The land sales for the year 1884 have been as follows:

	Union Div.	Kansas Div.	Total.
Acres.....	4,348,203	475,008	4,823,211
Amount.....	\$6,003,796	\$2,002,603	\$8,006,399

The total sales for 1883 were 1,165,349 acres for \$4,081,134; showing an increase last year of 3,657,862 acres sold, and of \$4,525,265 in amount. The average price per acre was much lower last year than in 1883; probably because large sales of grazing lands were included.

**Virginia & Carolina.**—About 40 miles of grading on his road are now completed; 20 miles being on the northern end of the road near Petersburg, Va., and 20 miles on the southern end from Ridgway, N. C. northward, this section including the bridge over the Roanoke River. The grading force is now employed on a section of 20 miles from Dinwiddie Court House, Va., southward.

**Wabash, St. Louis & Pacific.**—The Receivers have filed in the United States Circuit Court their report under the order of June 28, 1884, with regard to keeping separately the accounts of certain lines from May 29 to Sept. 30, 1884. The following is a summary of the figures in the report:

Detroit, Butler & St. Louis: Earnings, \$203,236; expenses, \$181,386; surplus, \$21,850.

Eel River: Earnings, \$124,784; expenses, \$123,820; surplus, \$964.

Quincy, Missouri & Pacific: Earnings, \$59,547; expenses, \$60,964; deficit, \$1,416.

Indianapolis, Peru & Chicago: Earnings, \$245,079; expenses, \$168,279; surplus, \$76,800.

Toledo, Peoria & Western: Earnings, \$428,860; expenses, \$357,691; surplus, \$71,069.

Havana, Rantoul & Eastern: Earnings, \$24,274; expenses, \$26,544; deficit, \$2,269.

Centerville, Moravia & Albion: Earnings, \$15,033; expenses, \$13,208; surplus, \$1,764.

Cairo Division: Earnings, \$178,976; expenses, \$220,837; deficit, \$41,861.

Champaign, Havana & Western: Earnings, \$72,236; expenses, \$93,542; deficit, \$21,306.

Iowa Division: Earnings, \$125,355; expenses, \$128,651; deficit, \$3,295.